

LIST OF EXHIBITS

<u>Exhibit No.</u>	<u>Exhibit Title</u>	<u>Location</u>
1	Ownership Information	Volume 4
2	Compliance Information	Volume 4
3	Public Notice and Proof of Publication, Hearing Notices and Documentation	Volume 4
4	Other Permits	Volume 4
5	Soils Information	Volumes 4 & 5
6	Vegetation, Fish, and Wildlife Information	Volume 5
7	Documentation of Existing Site Conditions	Volume 5
8	Deleted October 1999	
9	Geologic Information	Volume 6
10	Hydrologic Information	Volume 6
11	Geotechnical Investigations	Volumes 6 & 7
12	Deleted February 2000	
13	Drainage and Sediment Control Plan	Volumes 7 & 8
14	Willow Creek Realignment Plans	Volume 9
15	Blasting Plan	Volume 9
16	Subsidence Information	Volume 9
17	Bonding and Insurance Information	Volume 9
18	Bibliography	Volume 9
19	Castle Gate Information	Volumes 10 thru 14
20	Crandall Canyon Information	Volumes 15 & 16
21	Deleted October 1999	
22	Barn Canyon Shaft Information	Volume 16
23	As-Built Reclamation, Willow Creek Mine, Mine Facilities Area .	Volume 17

FILE IN: Expandable 07182006
Refer to Record No. CC32
in 10070038, 2006, Incoming
for additional information

LIST OF EXHIBITS

<u>Exhibit No.</u>	<u>Exhibit Title</u>	<u>Location</u>
1	Ownership Information	Volume 4
2	Compliance Information	Volume 4
3	Public Notice and Proof of Publication, Hearing Notices and Documentation	Volume 4
4	Other Permits	Volume 4
5	Soils Information	Volumes 4 & 5
6	Vegetation, Fish, and Wildlife Information	Volume 5
7	Documentation of Existing Site Conditions	Volume 5
8	Deleted October 1999	
9	Geologic Information	Volume 6
10	Hydrologic Information	Volume 6
11	Geotechnical Investigations	Volumes 6 & 7
12	Deleted February 2000	
13	Drainage and Sediment Control Plan	Volumes 7 & 8
14	Willow Creek Realignment Plans	Volume 9
15	Blasting Plan	Volume 9
16	Subsidence Information	Volume 9
17	Bonding and Insurance Information	Volume 9
18	Bibliography	Volume 9
19	Castle Gate Information	Volumes 10 thru 14
20	Crandall Canyon Information	Volumes 15 & 16
21	Deleted October 1999	
22	Barn Canyon Shaft Information	Volume 16
23	As-Built Reclamation, Willow Creek Mine, Mine Facilities Area .	Volume 17

LIST OF EXHIBITS

<u>Exhibit No.</u>	<u>Exhibit Title</u>	<u>Location</u>
1	Ownership Information	Volume 4
2	Compliance Information	Volume 4
3	Public Notice and Proof of Publication, Hearing Notices and Documentation	Volume 4
4	Other Permits	Volume 4
5	Soils Information	Volumes 4 & 5
6	Vegetation, Fish, and Wildlife Information	Volume 5
7	Documentation of Existing Site Conditions	Volume 5
8	Deleted October 1999	
9	Geologic Information	Volume 6
10	Hydrologic Information	Volume 6
11	Geotechnical Investigations	Volumes 6 & 7
12	Deleted February 2000	
13	Drainage and Sediment Control Plan	Volumes 7 & 8
14	Willow Creek Realignment Plans	Volume 9
15	Blasting Plan	Volume 9
16	Subsidence Information	Volume 9
17	Bonding and Insurance Information	Volume 9
18	Bibliography	Volume 9
19	Castle Gate Information	Volumes 10 thru 14
20	Crandall Canyon Information	Volumes 15 & 16
21	Deleted October 1999	
22	Barn Canyon Shaft Information	Volume 16
23	As-Built Reclamation, Willow Creek Mine, Mine Facilities Area .	Volume 17

LIST OF EXHIBITS

<u>Exhibit No.</u>	<u>Exhibit Title</u>	<u>Location</u>
1	Ownership Information	Volume 4
2	Compliance Information	Volume 4
3	Public Notice and Proof of Publication, Hearing Notices and Documentation	Volume 4
4	Other Permits	Volume 4
5	Soils Information	Volumes 4 & 5
6	Vegetation, Fish, and Wildlife Information	Volume 5
7	Documentation of Existing Site Conditions	Volume 5
8	Deleted October 1999	
9	Geologic Information	Volume 6
10	Hydrologic Information	Volume 6
11	Geotechnical Investigations	Volumes 6 & 7
12	Deleted February 2000	
13	Drainage and Sediment Control Plan	Volumes 7 & 8
14	Willow Creek Realignment Plans	Volume 9
15	Blasting Plan	Volume 9
16	Subsidence Information	Volume 9
17	Bonding and Insurance Information	Volume 9
18	Bibliography	Volume 9
19	Castle Gate Information	Volumes 10 thru 14
20	Crandall Canyon Information	Volumes 15 & 16
21	Deleted October 1999	
22	Barn Canyon Shaft Information	Volume 16
23	As-Built Reclamation, Willow Creek Mine, Mine Facilities Area .	Volume 17

LIST OF EXHIBITS

<u>Exhibit No.</u>	<u>Exhibit Title</u>	<u>Location</u>
1	Ownership Information	Volume 4
2	Compliance Information	Volume 4
3	Public Notice and Proof of Publication, Hearing Notices and Documentation	Volume 4
4	Other Permits	Volume 4
5	Soils Information	Volumes 4 & 5
6	Vegetation, Fish, and Wildlife Information	Volume 5
7	Documentation of Existing Site Conditions	Volume 5
8	Deleted October 1999	
9	Geologic Information	Volume 6
10	Hydrologic Information	Volume 6
11	Geotechnical Investigations	Volumes 6 & 7
12	Deleted February 2000	
13	Drainage and Sediment Control Plan	Volumes 7 & 8
14	Willow Creek Realignment Plans	Volume 9
15	Blasting Plan	Volume 9
16	Subsidence Information	Volume 9
17	Bonding and Insurance Information	Volume 9
18	Bibliography	Volume 9
19	Castle Gate Information	Volumes 10 thru 14
20	Crandall Canyon Information	Volumes 15 & 16
21	Deleted October 1999	
22	Barn Canyon Shaft Information	Volume 16
23	As-Built Reclamation, Willow Creek Mine, Mine Facilities Area .	Volume 17

LIST OF EXHIBITS

<u>Exhibit No.</u>	<u>Exhibit Title</u>	<u>Location</u>
1	Ownership Information	Volume 4
2	Compliance Information	Volume 4
3	Public Notice and Proof of Publication, Hearing Notices and Documentation	Volume 4
4	Other Permits	Volume 4
5	Soils Information	Volumes 4 & 5
6	Vegetation, Fish, and Wildlife Information	Volume 5
7	Documentation of Existing Site Conditions	Volume 5
8	Deleted October 1999	
9	Geologic Information	Volume 6
10	Hydrologic Information	Volume 6
11	Geotechnical Investigations	Volumes 6 & 7
12	Deleted February 2000	
13	Drainage and Sediment Control Plan	Volumes 7 & 8
14	Willow Creek Realignment Plans	Volume 9
15	Blasting Plan	Volume 9
16	Subsidence Information	Volume 9
17	Bonding and Insurance Information	Volume 9
18	Bibliography	Volume 9
19	Castle Gate Information	Volumes 10 thru 14
20	Crandall Canyon Information	Volumes 15 & 16
21	Deleted October 1999	
22	Barn Canyon Shaft Information	Volume 16
23	As-Built Reclamation, Willow Creek Mine, Mine Facilities Area .	Volume 17

LIST OF EXHIBITS

<u>Exhibit No.</u>	<u>Exhibit Title</u>	<u>Location</u>
1	Ownership Information	Volume 4
2	Compliance Information	Volume 4
3	Public Notice and Proof of Publication, Hearing Notices and Documentation	Volume 4
4	Other Permits	Volume 4
5	Soils Information	Volumes 4 & 5
6	Vegetation, Fish, and Wildlife Information	Volume 5
7	Documentation of Existing Site Conditions	Volume 5
8	Deleted October 1999	
9	Geologic Information	Volume 6
10	Hydrologic Information	Volume 6
11	Geotechnical Investigations	Volumes 6 & 7
12	Deleted February 2000	
13	Drainage and Sediment Control Plan	Volumes 7 & 8
14	Willow Creek Realignment Plans	Volume 9
15	Blasting Plan	Volume 9
16	Subsidence Information	Volume 9
17	Bonding and Insurance Information	Volume 9
18	Bibliography	Volume 9
19	Castle Gate Information	Volumes 10 thru 14
20	Crandall Canyon Information	Volumes 15 & 16
21	Deleted October 1999	
22	Barn Canyon Shaft Information	Volume 16
23	As-Built Reclamation, Willow Creek Mine, Mine Facilities Area .	Volume 17

LIST OF EXHIBITS

<u>Exhibit No.</u>	<u>Exhibit Title</u>	<u>Location</u>
1	Ownership Information	Volume 4
2	Compliance Information	Volume 4
3	Public Notice and Proof of Publication, Hearing Notices and Documentation	Volume 4
4	Other Permits	Volume 4
5	Soils Information	Volumes 4 & 5
6	Vegetation, Fish, and Wildlife Information	Volume 5
7	Documentation of Existing Site Conditions	Volume 5
8	Deleted October 1999	
9	Geologic Information	Volume 6
10	Hydrologic Information	Volume 6
11	Geotechnical Investigations	Volumes 6 & 7
12	Deleted February 2000	
13	Drainage and Sediment Control Plan	Volumes 7 & 8
14	Willow Creek Realignment Plans	Volume 9
15	Blasting Plan	Volume 9
16	Subsidence Information	Volume 9
17	Bonding and Insurance Information	Volume 9
18	Bibliography	Volume 9
19	Castle Gate Information	Volumes 10 thru 14
20	Crandall Canyon Information	Volumes 15 & 16
21	Deleted October 1999	
22	Barn Canyon Shaft Information	Volume 16
23	As-Built Reclamation, Willow Creek Mine, Mine Facilities Area .	Volume 17

LIST OF EXHIBITS

<u>Exhibit No.</u>	<u>Exhibit Title</u>	<u>Location</u>
1	Ownership Information	Volume 4
2	Compliance Information	Volume 4
3	Public Notice and Proof of Publication, Hearing Notices and Documentation	Volume 4
4	Other Permits	Volume 4
5	Soils Information	Volumes 4 & 5
6	Vegetation, Fish, and Wildlife Information	Volume 5
7	Documentation of Existing Site Conditions	Volume 5
8	Deleted October 1999	
9	Geologic Information	Volume 6
10	Hydrologic Information	Volume 6
11	Geotechnical Investigations	Volumes 6 & 7
12	Deleted February 2000	
13	Drainage and Sediment Control Plan	Volumes 7 & 8
14	Willow Creek Realignment Plans	Volume 9
15	Blasting Plan	Volume 9
16	Subsidence Information	Volume 9
17	Bonding and Insurance Information	Volume 9
18	Bibliography	Volume 9
19	Castle Gate Information	Volumes 10 thru 14
20	Crandall Canyon Information	Volumes 15 & 16
21	Deleted October 1999	
22	Barn Canyon Shaft Information	Volume 16
23	As-Built Reclamation, Willow Creek Mine, Mine Facilities Area .	Volume 17

LIST OF EXHIBITS

<u>Exhibit No.</u>	<u>Exhibit Title</u>	<u>Location</u>
1	Ownership Information	Volume 4
2	Compliance Information	Volume 4
3	Public Notice and Proof of Publication, Hearing Notices and Documentation	Volume 4
4	Other Permits	Volume 4
5	Soils Information	Volumes 4 & 5
6	Vegetation, Fish, and Wildlife Information	Volume 5
7	Documentation of Existing Site Conditions	Volume 5
8	Deleted October 1999	
9	Geologic Information	Volume 6
10	Hydrologic Information	Volume 6
11	Geotechnical Investigations	Volumes 6 & 7
12	Deleted February 2000	
13	Drainage and Sediment Control Plan	Volumes 7 & 8
14	Willow Creek Realignment Plans	Volume 9
15	Blasting Plan	Volume 9
16	Subsidence Information	Volume 9
17	Bonding and Insurance Information	Volume 9
18	Bibliography	Volume 9
19	Castle Gate Information	Volumes 10 thru 14
20	Crandall Canyon Information	Volumes 15 & 16
21	Deleted October 1999	
22	Barn Canyon Shaft Information	Volume 16
23	As-Built Reclamation, Willow Creek Mine, Mine Facilities Area .	Volume 17

LIST OF EXHIBITS

<u>Exhibit No.</u>	<u>Exhibit Title</u>	<u>Location</u>
1	Ownership Information	Volume 4
2	Compliance Information	Volume 4
3	Public Notice and Proof of Publication, Hearing Notices and Documentation	Volume 4
4	Other Permits	Volume 4
5	Soils Information	Volumes 4 & 5
6	Vegetation, Fish, and Wildlife Information	Volume 5
7	Documentation of Existing Site Conditions	Volume 5
8	Deleted October 1999	
9	Geologic Information	Volume 6
10	Hydrologic Information	Volume 6
11	Geotechnical Investigations	Volumes 6 & 7
12	Deleted February 2000	
13	Drainage and Sediment Control Plan	Volumes 7 & 8
14	Willow Creek Realignment Plans	Volume 9
15	Blasting Plan	Volume 9
16	Subsidence Information	Volume 9
17	Bonding and Insurance Information	Volume 9
18	Bibliography	Volume 9
19	Castle Gate Information	Volumes 10 thru 14
20	Crandall Canyon Information	Volumes 15 & 16
21	Deleted October 1999	
22	Barn Canyon Shaft Information	Volume 16
23	As-Built Reclamation, Willow Creek Mine, Mine Facilities Area .	Volume 17

LIST OF EXHIBITS

<u>Exhibit No.</u>	<u>Exhibit Title</u>	<u>Location</u>
1	Ownership Information	Volume 4
2	Compliance Information	Volume 4
3	Public Notice and Proof of Publication, Hearing Notices and Documentation	Volume 4
4	Other Permits	Volume 4
5	Soils Information	Volumes 4 & 5
6	Vegetation, Fish, and Wildlife Information	Volume 5
7	Documentation of Existing Site Conditions	Volume 5
8	Deleted October 1999	
9	Geologic Information	Volume 6
10	Hydrologic Information	Volume 6
11	Geotechnical Investigations	Volumes 6 & 7
12	Deleted February 2000	
13	Drainage and Sediment Control Plan	Volumes 7 & 8
14	Willow Creek Realignment Plans	Volume 9
15	Blasting Plan	Volume 9
16	Subsidence Information	Volume 9
17	Bonding and Insurance Information	Volume 9
18	Bibliography	Volume 9
19	Castle Gate Information	Volumes 10 thru 14
20	Crandall Canyon Information	Volumes 15 & 16
21	Deleted October 1999	
22	Barn Canyon Shaft Information	Volume 16
23	As-Built Reclamation, Willow Creek Mine, Mine Facilities Area .	Volume 17

LIST OF EXHIBITS

<u>Exhibit No.</u>	<u>Exhibit Title</u>	<u>Location</u>
1	Ownership Information	Volume 4
2	Compliance Information	Volume 4
3	Public Notice and Proof of Publication, Hearing Notices and Documentation	Volume 4
4	Other Permits	Volume 4
5	Soils Information	Volumes 4 & 5
6	Vegetation, Fish, and Wildlife Information	Volume 5
7	Documentation of Existing Site Conditions	Volume 5
8	Deleted October 1999	
9	Geologic Information	Volume 6
10	Hydrologic Information	Volume 6
11	Geotechnical Investigations	Volumes 6 & 7
12	Deleted February 2000	
13	Drainage and Sediment Control Plan	Volumes 7 & 8
14	Willow Creek Realignment Plans	Volume 9
15	Blasting Plan	Volume 9
16	Subsidence Information	Volume 9
17	Bonding and Insurance Information	Volume 9
18	Bibliography	Volume 9
19	Castle Gate Information	Volumes 10 thru 14
20	Crandall Canyon Information	Volumes 15 & 16
21	Deleted October 1999	
22	Barn Canyon Shaft Information	Volume 16
23	As-Built Reclamation, Willow Creek Mine, Mine Facilities Area .	Volume 17

LIST OF EXHIBITS

<u>Exhibit No.</u>	<u>Exhibit Title</u>	<u>Location</u>
1	Ownership Information	Volume 4
2	Compliance Information	Volume 4
3	Public Notice and Proof of Publication, Hearing Notices and Documentation	Volume 4
4	Other Permits	Volume 4
5	Soils Information	Volumes 4 & 5
6	Vegetation, Fish, and Wildlife Information	Volume 5
7	Documentation of Existing Site Conditions	Volume 5
8	Deleted October 1999	
9	Geologic Information	Volume 6
10	Hydrologic Information	Volume 6
11	Geotechnical Investigations	Volumes 6 & 7
12	Deleted February 2000	
13	Drainage and Sediment Control Plan	Volumes 7 & 8
14	Willow Creek Realignment Plans	Volume 9
15	Blasting Plan	Volume 9
16	Subsidence Information	Volume 9
17	Bonding and Insurance Information	Volume 9
18	Bibliography	Volume 9
19	Castle Gate Information	Volumes 10 thru 14
20	Crandall Canyon Information	Volumes 15 & 16
21	Deleted October 1999	
22	Barn Canyon Shaft Information	Volume 16
23	As-Built Reclamation, Willow Creek Mine, Mine Facilities Area .	Volume 17

LIST OF EXHIBITS

<u>Exhibit No.</u>	<u>Exhibit Title</u>	<u>Location</u>
1	Ownership Information	Volume 4
2	Compliance Information	Volume 4
3	Public Notice and Proof of Publication, Hearing Notices and Documentation	Volume 4
4	Other Permits	Volume 4
5	Soils Information	Volumes 4 & 5
6	Vegetation, Fish, and Wildlife Information	Volume 5
7	Documentation of Existing Site Conditions	Volume 5
8	Deleted October 1999	
9	Geologic Information	Volume 6
10	Hydrologic Information	Volume 6
11	Geotechnical Investigations	Volumes 6 & 7
12	Deleted February 2000	
13	Drainage and Sediment Control Plan	Volumes 7 & 8
14	Willow Creek Realignment Plans	Volume 9
15	Blasting Plan	Volume 9
16	Subsidence Information	Volume 9
17	Bonding and Insurance Information	Volume 9
18	Bibliography	Volume 9
19	Castle Gate Information	Volumes 10 thru 14
20	Crandall Canyon Information	Volumes 15 & 16
21	Deleted October 1999	
22	Barn Canyon Shaft Information	Volume 16
23	As-Built Reclamation, Willow Creek Mine, Mine Facilities Area .	Volume 17

5.0 RECLAMATION PLANS

This section of the Willow Creek Permit Application provides both general and specific information relative to the plans and practices which will be utilized to reclaim and restore surface disturbance areas resulting from mining and related operations to condition and productivity comparable to or better than their condition prior to the Willow Creek Mine disturbance consistent with a postmining land use of wildlife habitat. Information sources utilized in developing the reclamation plans presented in this section include the baseline environmental investigations, detailed mining plans developed by the CPMC Engineering Group, conceptual and detailed facility layouts and designs, detailed drainage and sediment control plans, and specific plans for control, monitoring, and mitigation of mining related impacts. The reclamation design information and discussions of reclamation practices presented in this section have been prepared in compliance with applicable provisions of the State of Utah Coal Mining Rules and are intended to provide a reasonable description of the nature, timing, and anticipated results of planned reclamation activities. The reclamation plans presented in this section reflect consideration of the environmental resource information presented in Section 3.0, Environmental Information, and the mining plans presented in Section 4.5, Engineering Design and Operations Plans, and are designed to effectively mitigate to the extent operationally practicable the potential effects of mining.

The various information categories addressed in the subsections which make up the Reclamation Plans Section are consistent with the information categories outlined in the State of Utah Coal Mining Rules. The following are the subsection titles and designations included in this section:

- 5.1 Reclamation of Exploration Disturbance
- 5.2 Soil Replacement Plans
- 5.3 Habitat Restoration Plans
- 5.4 Reclamation of Mining Disturbance
- 5.5 Hydrologic Restoration

Each subsection identifies the applicable regulatory provisions addressed and sources for the information presented and includes related supporting tables and figures. Other supporting documentation, including maps and exhibits, is referenced in the text and provided in the separate map and exhibit volumes.

The Mine Facilities Area of the Willow Creek Mine site was reclaimed in the summer and fall of 2004 with final seeding occurring in August of 2004. All details regarding the as-built reclamation of the site can be found in Exhibit 23. As-built topography can be seen on Maps 21A - AB through 21E- AB. Reclamation treatment can be seen on Map 21G - AB. As-built reclamation cross-sections can be seen on Map 22A - AB with as-built reclamation channel profiles on Map 22B - AB.

EXHIBIT 23
AS-BUILT RECLAMATION
WILLOW CREEK MINE – MINE FACILITIES AREA

July 2006

**EXHIBIT 23
AS-BUILT RECLAMATION
WILLOW CREEK MINE - MINE FACILITIES AREA**

TABLE OF CONTENTS

<u>Section</u>	<u>Page</u>
5.0 AS-BUILT RECLAMATION	5-1
5.1 RECLAMATION OF EXPLORATION DISTURBANCE	5-2
5.2 SOIL REPLACEMENT	5-3
5.2.1 General Description of Soil Replacement	5-3
5.2.1.1 Applicable Regulatory Sections Addressed	5-3
5.2.1.2 General Soil Replacement Requirements	5-3
5.2.2 Soil Replacement Practices	5-3
5.2.2.1 Timing of Soil Replacement Activities	5-4
5.2.2.2 Soil Replacement Practices	5-4
5.2.2.3 Soil Suitability and Testing	5-4
5.2.2.4 Soil Stabilization Measures	5-4
5.3 HABITAT RESTORATION	5-6
5.3.1 General Description of Habitat Restoration	5-6
5.3.1.1 Applicable Regulatory Sections Addressed	5-6
5.3.1.2 General Habitat Restoration Requirements	5-6
5.3.2 Revegetation Plans and Practices	5-7
5.3.2.1 Timing of Revegetation Activities	5-7
5.3.2.2 Revegetation Practices	5-8
5.3.2.3 Revegetation Species and Amounts	5-9
5.3.2.4 Mulching and Stabilization Practices	5-10
5.3.2.5 Irrigation and Pest Control	5-10
5.3.2.6 Revegetation Success - Criteria and Evaluation Methods	5-11
5.3.3 Habitat Enhancement Plans	5-12
5.3.3.1 Habitat Restoration and Enhancement Measures	5-13
5.3.3.2 Revegetation Measures for Wildlife Habitat Enhancement	5-13
5.3.3.3 Provisions for Protection and Reporting of any Threatened, Endangered, or Sensitive Species	5-14

TABLE OF CONTENTS (continued)

<u>Section</u>	<u>Page</u>
5.4 RECLAMATION OF MINING DISTURBANCE	5-15
5.4.1 General Description of Reclamation	5-15
5.4.1.1 Applicable Regulatory Sections Addressed	5-15
5.4.1.2 General Reclamation Objectives and Activities	5-15
5.4.1.3 Proposed Variances from Regulatory Standards	5-16
5.4.1.4 Certification and Reporting	5-16
5.4.1.5 Mapping of Reclamation Information	5-16
5.4.2 Reclamation Practices	5-16
5.4.2.1 Reclamation Timing and Sequencing	5-17
5.4.2.2 Reclamation Plan	5-17
5.4.2.3 Reclamation Practices	5-19
5.4.3 Reclamation Bond Release	5-25
5.5 HYDROLOGIC RESOURCE RESTORATION	5-26
5.5.1 General Description of the Hydrologic Restoration Procedure	5-26
5.5.1.1 Applicable Regulatory Sections Addressed	5-26
5.5.1.2 General Hydrologic Restoration Requirements	5-26
5.5.2 Hydrologic Restoration Procedure	5-26
5.5.2.1 Removal and Reclamation of Temporary Structures	5-27
5.5.2.2 Compliance of Permanent Structures	5-27
5.5.2.3 Reclamation of Roads	5-27
5.5.2.4 Restoration of Natural Drainage Patterns	5-28
5.5.2.5 Maintenance of Siltation Structures	5-28
5.5.2.6 Casing and Sealing of Wells and Mine Openings	5-30

LIST OF ATTACHMENTS

Attachments

Attachment 1	As-Built Reclamation Hydrology
Attachment 2	Reclamation Certification, Public Notice and Letters to Agency and Land Owners
Attachment 3	Bond Release Calculations
Attachment 4	Portal Area Fill Slope Stability
Attachment 5	Operational Structures Remaining as Part of Industrial Postmining Land Use
Attachment 6	Agreement for Purchase and Sale CEU/PMC and CEU letter outlining CEU's intended use of the facilities

LIST OF MAPS

Maps

21A - AB	As-Built Topography and Drainage Structures Location Map
21B - AB	As-Built Topography and Drainage Structures Location Map
21C - AB	As-Built Topography and Drainage Structures Location Map
21D - AB	As-Built Topography and Drainage Structures Location Map
21E - AB	As-Built Topography and Drainage Structures Location Map
21G - AB	Postmining As-Built Treatment and Watershed Map
22A - AB	As-Built/ Operational/ and Postmining Cross-Sections
22B - AB	As-Built Postmining Stream Profiles

The maps listed above have been included in the map section of the M&RP. The maps are not included in this Exhibit but are referenced here to indicate that as-built reclamation maps have been prepared.

5.0 AS-BUILT RECLAMATION

This exhibit is the Willow Creek Mine Bond Release Application and provides both general and specific information relative to as-built reclamation of the Mine Facilities Area of the Willow Creek Mine. This exhibit will discuss the practices which were utilized to reclaim and restore surface disturbance areas resulting from mining and related operations to condition and productivity comparable to or better than their condition prior to the Willow Creek Mine disturbance and consistent with a postmining land use of wildlife habitat and industrial. The reclamation information and discussions of reclamation practices presented in this exhibit have been prepared in compliance with applicable provisions of the State of Utah Coal Mining Rules and are intended to provide a reasonable description of the nature, timing, and results of reclamation activities. Portions of the site have been designated to have an industrial land use. The industrial land use area and adjacent property has been sold to the College of Eastern Utah ("CEU"), see Map 21G - AB. The property not sold to CEU will still be owned by PMC. Phase III bond release is being requested for the industrial land use area now controlled by CEU. Phase I bond release is being requested for the remaining wildlife habitat land use areas. Map 21G - AB identifies the Phase I and Phase III bond release areas and the associated acreage.

The various information categories addressed in the subsections which make up the As-built Reclamation Exhibit are consistent with the information categories outlined in the State of Utah Coal Mining Rules. The following are the subsection titles and designations included in this exhibit:

- 5.1 Reclamation of Exploration Disturbance
- 5.2 Soil Replacement
- 5.3 Habitat Restoration
- 5.4 Reclamation of Mining Disturbance
- 5.5 Hydrologic Restoration

Each subsection identifies the applicable regulatory provisions addressed and sources for the information presented and includes related supporting tables and figures. Other supporting documentation, including maps and exhibits, is referenced in the text and provided in the separate map section and attachments.

This exhibit has been organized such that the section numbers in this exhibit correspond to the same section in the M&RP. This exhibit has been organized in this manner so that the commitments in the M&RP can be easily compared to the as-built reclamation text in the exhibit. Hence this exhibit starts at Section 5.0 rather than Section 1.0 because reclamation is discussed in Chapter 5 of the M&RP.

5.1 RECLAMATION OF EXPLORATION DISTURBANCE

This section of the M&RP does not apply to this application for bond release of the Willow Creek Mine surface facilities. Reclamation of any exploration disturbance will be discussed in a separate document. This heading has been kept to keep the same order as found in the M&RP.

5.2 SOIL REPLACEMENT

5.2.1 General Description of Soil Replacement

This section presents and describes soil material replacement practices used in reclaiming disturbed areas resulting from mining and related activities. Information in this section was developed in accordance with applicable regulatory requirements (R645-301-240 and 250) for coal mine permitting in the State of Utah.

5.2.1.1 Applicable Regulatory Sections Addressed

Specifically, this section addresses Rules R645-301-240, 241 through 244.320, and 250. The following cross-references headings and corresponding information presented in this section to the applicable regulatory provisions:

<u>Permit Section</u>	<u>Applicable Regulatory Requirements</u>
5.2.1	
5.2.1.1	General Introductory Information
5.2.1.2	R645-301-240, 241, and 250
5.2.2	
5.2.2.1	R645-301-242.130
5.2.2.2	R645-301-242.100 through 310
5.2.2.3	R645-301-243
5.2.2.4	R645-301-244.100 through 320

5.2.1.2 General Soil Replacement Requirements

The Willow Creek Mine surface facilities area is the primary surface disturbance area resulting from the mining and related activities. Other smaller areas of disturbance consist of exploration sites, access roads, shaft sites and other mine support areas. During mine construction and development, all available soil and substitute material was recovered from these areas and stockpiled for use in reclamation. A description of the soil recovery and stockpiling methods used for these areas are presented in Section 4.2, Soil Handling Plans in the M&RP.

Consistent with applicable regulatory requirements, PMC utilized all of the available stockpiled reserves of soil material to reclaim the site. Following placement appropriate surface treatments were utilized to stabilize and protect the replaced soil materials.

5.2.2 Soil Replacement Practices

Generally, soil replacement practices were essentially the same for all surface disturbance areas and did not vary between soil replacement and soil substitute replacement. Typical soil replacement activities involved:

- Preparation of the regraded surface
- Soil recovery from stockpile, placement, and grading

- Soil preparation measures
- Soil stabilization measures

The following sections describe these specific soil and substitute replacement, preparation, and stabilization practices used.

5.2.2.1 Timing of Soil Replacement Activities

Generally, soil replacement and revegetation efforts were coordinated so that soil materials were revegetated as soon as practically possible following placement. This involved placement of soil and reseeding in August of 2004. This approach allowed the seed to "winter over" with germination in the spring when soil moisture conditions are elevated due to winter snow accumulations and spring melt.

5.2.2.2 Soil Replacement Practices

Soil materials recovered from the Willow Creek Mine topsoil stockpile were hauled and placed during the rough grading and final grading phases of reclamation. Soil from this stockpile was typically used to reclaim the portal area and the Refuse Pile. Reclaimed areas, such as adjacent to the long and short tunnels, that did not receive soil from the stockpile used the available soil at the site as substitute growth media. As discussed in Section 5.3.2.2, Revegetation Practices and Section 5.4.2.3, Reclamation Practices, the regraded surface was left in a roughened condition to control runoff, provide a good bond with the replaced soil/substitute material, and promote moisture retention and infiltration.

Typically either an excavator or wheel loaders were utilized to recover and load the materials from the stockpile and trucks were utilized to haul and place the material. Where trucks were used for haulage, a tracked dozer or motor grader were used to spread and distribute the soil material at a relatively uniform thickness. Replacement thickness was generally controlled visually by the equipment operators but was also checked and monitored for general consistency by the PMC operations supervisor or designated representative responsible for reclamation activities.

Certified noxious weed free hay with a high organic matter content was mixed into the soil in all reclaimed areas at a rate of 2 tons/acre during roughening/gouging to increase organic content, provide soil biota, and increase infiltration and moisture holding capacity.

5.2.2.3 Soil Suitability and Testing

As described in Section 4.2.2.2, Soil Suitability and Testing, both natural soils and the disturbed soils which were utilized as soil material were considered to be suitable materials for use as a revegetation growth medium for the purposes of site reclamation. The only suitability parameter identified as being a potential concern was soil texture as a reflection of the rock fragment content of existing natural and disturbed soils in the area. While noted as a concern relative to the UDOGM Topsoil/Overburden Suitability Parameters, this limitation was not a deterrent to the existing natural vegetation which exists on these soils in the mine area.

5.2.2.4 Soil Stabilization Measures

Soil materials were deep gouged to control runoff, limit erosion and soil loss, and promote moisture retention and infiltration. Revegetation seeding occurred following the

incorporation of certified noxious weed free hay mulch into the soil. The mulch was incorporated into the soil at a rate of 2 tons per acre during the gouging/roughening process. Following seeding, the reseeded areas were mulched with certified noxious weed free straw at a rate of 1.5 tons per acre. The straw mulch was then sprayed with a tackifier and mulch mixture at a rate of 0.25 tons per acre to retain it on the reseeded slopes. The tackifier and mulch methodology provides a better means for retaining the straw mulch on the reseeded areas than does the crimping methodology.

5.3 HABITAT RESTORATION

5.3.1 General Description of Habitat Restoration

This section presents and describes practices used to restore habitat values for those surface areas disturbed by mining and related activities. The habitat restoration methods presented in this section address both general vegetative reestablishment and specific habitat enhancement measures. Information in this section was developed in accordance with applicable regulatory requirements (R645-301-340 and 350) for coal mine permitting in the State of Utah.

5.3.1.1 Applicable Regulatory Sections Addressed

Specifically, this section addresses Rules R645-301-341, 342, 351 through 357.300, and 358. The following cross-references headings and corresponding information presented in this section to the applicable regulatory provisions;

<u>Permit Section</u>	<u>Applicable Regulatory Requirements</u>
5.3.1	
5.2.1.1	General Introductory Information
5.2.1.2	R645-301-341, 342, 352, 353 and 358
5.3.2	
5.3.2.1	R645-301-341.100 and 354
5.3.2.2	R645-301-341.220
5.3.2.3	R645-301-341.210 and 342.200 through 230
5.3.2.4	R645-301-341.230 and 355
5.3.2.5	R645-301-341.240 and 357.300
5.3.2.6	R645-301-341.250, 300, 353.100 through 300, 356.100 through 400, and 357.100 through 300
5.3.3	
5.3.3.1	R645-301-342.100 and 358.400 through 530
5.3.3.2	R645-301-342.200 through 400
5.3.3.3	R645-301-358.100 and 400
5.3.3.4	R645-301-358.200, 300, and 510

5.3.1.2 General Habitat Restoration Requirements

The Willow Creek Mine surface facilities area is the subject of discussion in this exhibit. As described in Section 4.3.1.2, General Biological Resource Protection Requirements, the majority of the mine facilities area has been extensively disturbed by previous highway construction and mining related activities resulting in destruction, elimination, or significant modification of vegetation and habitat values. Beyond the practical limitations on habitat value and use relating to the previous disturbance, wildlife use of the disturbed areas was also limited by human activity in the immediate area due to the proximity of U.S. Highways

6 and 50, State Highway 191, and the PacifiCorp Carbon Generating Station, and the existence of a herd of feral goats which inhabit the area.

From a practical standpoint, the mine surface facilities area and the Castle Gate preparation plant and loadout areas, because of the extensive previous disturbance and their proximity to other development activities, are not particularly well suited for any uses other than mining or industrial. Given, however, that these areas and the surrounding lands were in all probability undeveloped lands utilized for wildlife habitat, PMC has reclaimed surface disturbance areas, outside of the industrial use area, to a postmining land use of wildlife habitat. Consistent with the proposed postmining use, backfilling and grading focused on restoration of a land configuration consistent with applicable provisions for reining of previously disturbed areas with preexisting highwalls (R645-301-553.500 through 650) and the general configuration which existed prior to mine development, soil and substitute materials were replaced to provide a vegetative growth media similar to the natural soils existing in the area, and revegetation efforts were instituted to provide a self-sustaining postmining vegetation community which will effectively stabilize disturbed areas and provide suitable wildlife forage and browse. In addition to site revegetation measures, PMC also implemented specific habitat mitigation and enhancement measures, as further described in this section, to effectively address mining related impacts and provide some long-term mining related benefits.

5.3.2 Revegetation Plans and Practices

PMC's revegetation practices were implemented to provide or promote:

- Rapid vegetative reestablishment following completion of soil/substitute replacement
- Establishment of adequate plant density and cover to effectively control runoff and erosion
- Establishment of a reclaimed plant community consisting primarily of indigenous plant species with any introduced species having proven adaptability for site conditions
- Adequate plant species diversity and vigor to assure effective ongoing vegetative propagation and a self-sustaining vegetation community
- Palatable wildlife browse and forage species consistent with the postmining land use

Appropriate revegetation seed mixtures, seeding and planting methods and stabilization/management practices were used to achieve these objectives. Revegetation methods were similar for all surface disturbance areas and typically included the following specific activities:

- Seedbed preparation
- Seeding
- Mulching and surface stabilization
- Management and revegetation success monitoring

The following sections describe these specific revegetation practices.

5.3.2.1 Timing of Revegetation Activities

Generally, seeding of areas where soil/substitute materials were replaced occurred as soon as practically possible following regrading and gouging in order to minimize the potential for

both soil/substitute loss and erosion. This involved placement of soil/substitute and reseeding in August of 2004. This approach allowed the seed to "winter over" with germination in the spring when soil moisture conditions are elevated due to winter snow accumulations and spring melt.

5.3.2.2 Revegetation Practices

As previously described, revegetation of surface disturbance areas involved a logical sequence of activities including seedbed preparation (mixing hay into the soil during deep gouging), seeding, mulching, surface stabilization, and management and revegetation success monitoring. The same revegetation practices were utilized for all surface disturbance areas.

Seedbed Preparation

Prior to seeding, PMC prepared the regraded and resoiled areas to provide a firm but uncompacted seedbed. Backfilling, grading, and soil/substitute replacement activities were conducted so as to minimize surface compaction. To eliminate any surface compaction that occurred during regrading the entire reclamation surface was deep gouged to a depth of at least 2 feet. Following regrading and prior to application of the reclamation seed mix, certified noxious weed free hay mulch with a high organic matter content was incorporated into the growth media at a rate of 2 tons per acre. This was done to improve soil structure for aeration purposes, increase micropore space, and improve the water holding capacity of the soil. Incorporation of the mulch occurred during deep gouging/roughening. Deep gouging typically loosened the top 2 feet of soil.

Seeding

PMC used broadcast seeding for all areas reseeded as part of reclamation. All reclaimed areas received the permanent seed mixture as shown on Table 5.3-2b. The seed mixture was broadcast seeded at a rate of 36.0 pounds (Upland mixture) of P.S./acre.

Following deep gouging the resoiled areas were seeded with the appropriate seed mixture and rates. Shortly after the seeding, an additional 1.5 tons per acre of certified noxious weed free straw was spread over the seeded growth media by mechanical blowers or hand spreading. This mulch was sprayed with a tackifier and mulch mixture at a rate of 0.25 tons per acre following spreading to retain it on the reseeded slopes. Commercial seed purchases were based on specifications which minimized the potential for introduction of noxious weed species.

Woody Species Transplanting

The permanent seed mixture used for the Willow Creek surface facilities area reclamation includes several woody plant species which can be effectively established from seed.

Mulching and Surface Stabilization

Surface stabilization measures were used as an integral part of PMC's specific reclamation procedures for backfilling and grading, drainage reestablishment, soil/substitute replacement, seedbed preparation, and revegetation seeding activities. In addition to specific surface stabilization measures, PMC also selectively applied alternative sediment control measures as appropriate to control erosion and apply weed-free straw or native hay mulch to re-seeded surface disturbance areas.

Management and Revegetation Success Monitoring

Re-seeded areas will be managed to achieve the revegetation of the site. Management practices will include regular periodic inspection of reseeded areas; appropriate erosion control or repair activities; weed/pest control operations; re-seeding, if required; and revegetation success sampling and evaluations.

As part of the postmining management program, reclaimed areas will be qualitatively inspected on a regular quarterly basis at a minimum for any indications of significant erosion, siltation, surface instability, drainage problems, seeding failure, weed infestations, or other conditions which could adversely impact reclamation success. Inspections will continue throughout the extended liability period to assure effective reclamation. Any problems identified as a result of these regular inspections will be addressed in a timely manner consistent with overall reclamation plans and practices.

The reclamation of the Willow Creek Mine was conducted in a manner to prevent or minimize erosion and restore disturbed areas to a stable and productive condition. If despite PMC's best efforts, inspection of the reclaimed areas indicates that natural erosional processes are creating significant rills or gullies, PMC will implement appropriate remedial/protective measures. In order to minimize any associated surface disturbance, the proposed erosion mitigation measures will reflect consideration of the nature and extent of erosional damage and be designed to be implemented in phases dependent on the severity of or potential for damage. Specific erosion mitigation measures are described in Section 5.4.2.3, Reclamation Practices, under the sub-heading of Post-Reclamation Management and Monitoring.

Any seeding failures or weed infestations identified by the post-reclamation management inspections will be addressed during appropriate time periods to achieve optimal mitigation. Any areas where partial or complete seeding failure is indicated by limited vegetative reestablishment or excessive dominance of one or more species will be addressed by reseeded the effected areas during either the early spring or late fall. Essentially the same seeding methods will be utilized as for initial seeding with the exception of seedbed preparation. Any significant weed infestations will be addressed through consultation with UDOGM to determine appropriate control measures. A detailed description of specific weed and pest control measures is presented in Section 5.3.2.5, Irrigation and Pest Control.

In addition to regular periodic inspections of re-seeded areas, PMC will also implement a revegetation success monitoring program to quantify and document the progression of vegetative reestablishment for all reclaimed areas. The ultimate objectives of the revegetation success monitoring program will be to allow timely identification and remediation of any vegetative reestablishment problems and to provide the verification required for a revegetation success determination and final bond release. A detailed discussion of the revegetation success monitoring program is provided in Section 5.3.2.6, Revegetation Success - Criteria and Evaluation Methods.

5.3.2.3 Revegetation Species and Amounts

The seed mixture used for the reclaimed upland areas is presented as Table 5.3-2 and Table 5.3-2b, Permanent Seed Mixture (Upland) in the M&RP. Table 5.3-2b reflects availability of seed during 2004 when reclamation of the site was occurring. The permanent upland seed mixture consisted of a variety of predominantly native grasses, forbs, and shrubs with proven site adaptability and good hardiness which were specifically selected for their value as browse and forage species consistent with the postmining land use of wildlife habitat as recommended by the UDW. The permanent mixture was utilized for revegetation of all upland surface disturbance areas and included a variety of species found

in both the grass-sage and pinyon juniper vegetation communities. Based on their occurrence in natural plant communities in the area, available agronomic and wildlife research, and actual operating experience at coal mines in the Price, Utah area, the selected species included in the permanent reclamation seed mixture will provide an effective self-sustaining vegetative cover which will control surface runoff and erosion, provide sufficient diversity to assure the long-term stability of the revegetated community, and is compatible with PMC's wildlife habitat mitigation, restoration, and enhancement objectives.

To the extent reasonably feasible consistent with both site stabilization and reclamation objectives, PMC selected revegetation species which are predominantly native species.

In order to assure that seeding and planting stocks are of suitable quality for effective revegetation, PMC attempted to obtain native seed material from those sources which most closely approximate site conditions and dealt only with established reputable seed suppliers. PMC assured acceptable purity and germination standards for all seed mixtures and required that suppliers certify seed shipments as meeting the standard specifications and being free of noxious weed seed.

5.3.2.4 Mulching and Stabilization Practices

As described in Section 5.4.2.3, Reclamation Practices, under the sub-heading of Backfilling and Grading to Establish Final Configuration, and Drainage Reestablishment; and in this section under the sub-heading of Seedbed Preparation; reclaimed areas were graded to a stable configuration with reestablishment of effective surface drainage patterns; regraded surfaces were deep gouged, hay was applied, and the surface was left in a roughened condition to enhance soil bonding; and soil/substitute materials were prepared for seeding and left in a roughened condition. All of these reclamation practices contributed to the effective stabilization of the reclaimed surface.

In addition to the specific stabilization practices, following reclamation seeding, straw mulch was applied to re-seeded areas at a rate of 1.5 tons per acre and sprayed with a tackifier and mulch mixture to protect the soil, minimize erosion, prevent seed loss, and help trap and retain moisture.

5.3.2.5 Irrigation and Pest Control

While irrigation can potentially facilitate initial vegetative establishment it is not a practical long-term management practice and may actually reduce long-term revegetation success. For these reasons, and because irrigation is incompatible with both the postmining land use of wildlife habitat and the objective of a self-sustaining vegetation community, PMC will not utilize irrigation in conjunction with site revegetation efforts.

Regular periodic inspections of revegetated areas will include inspection for any noxious weed infestations or insect damage. If noxious weed infestations or insect problems are identified which have the potential to adversely impact revegetation success, PMC will consult with both UDOGM and Carbon County Weed Control to develop and implement appropriate control measures. If the controls determined through this consultation process involve the application of herbicides or insecticides, only those chemicals approved for use by the appropriate State and Federal agencies will be considered and control practices will be limited to spot application at the appropriate time period for best control of the problem species.

5.3.2.6 Revegetation Success - Criteria and Evaluation Methods

In order to accurately and objectively evaluate the effectiveness of revegetation efforts and provide a quantitative determination of ultimate revegetation success, PMC will conduct field revegetation success sampling and will evaluate the resulting field data. The following discussion outlines revegetation success monitoring practices and evaluation criteria for those new disturbance areas associated with the Willow Creek surface facilities area. Other existing disturbance areas including the Castle Gate preparation plant and loadout, Gravel Canyon, and Crandall Canyon areas were addressed as part of the bond release application for those sites.

Sampling of revegetated areas will be conducted at intervals of four, eight, nine, and ten years following initial permanent revegetation seeding. Consistent with the baseline and reference area approaches for evaluation of revegetation success as outlined in the UDOGM Vegetation Information Guidelines (UDOGM, 2/92) and the baseline vegetation sampling program as discussed in Section 3.2.2.3, Vegetation Parameters, PMC will sample cover and productivity for all permanently revegetated areas and will evaluate revegetation success on the basis of these two primary parameters.

Revegetation success sampling and evaluation methods for ground cover and productivity will be essentially the same as previously utilized for baseline data collection. These methods, as described in Section 3.2.1.2, Sources of Vegetation Information, will include the use of randomly located sampling transects, measurement of cover using an inclined ten-point frame, and measurement of productivity by clipping randomly located sample plots. Woody plant density was not measured as a baseline parameter consistent with discussions with Mr. Paul Baker of UDOGM since it was felt that a fixed woody plant density standard would be more appropriate than utilization of a baseline comparison. For revegetation success evaluations, woody plant density will be measured by counting all woody plants rooted within one meter on either side of the 50 meter random transects utilized for cover sampling and extrapolating the corresponding woody plant density to determine density on a "stems per acre" basis. Sample adequacy for all revegetation success sampling will be evaluated using the formula presented in Appendix A of the UDOGM Vegetation Information Guidelines and will be based on the objective of achieving a 90 percent confidence interval within 10 percent of the mean.

The purpose of revegetation sampling efforts during years four and eight of the extended liability period will be to determine and evaluate the effectiveness of site revegetation efforts and to determine trends for vegetative reestablishment. The resulting data and evaluation results will be utilized as appropriate to identify any potential areas of concern and to guide post-reclamation management efforts in order to meet specific requirements for a revegetation success determination and ultimately achieve the overall reclamation objectives. Revegetation success monitoring during years nine and ten of the extended liability period will focus on data collection and development of the necessary documentation to allow for effective comparison of reclaimed and baseline conditions as the basis for a revegetation success determination.

The original baseline sampling involved collection of cover and production data for four distinct vegetation types: 1) Disturbed; 2) AMR Reclamation; 3) Riparian; and 4) Pinyon-Juniper. With the exception of the riparian seed mixture and supplemental woody plant transplants proposed for the riparian bottom areas, all reclaimed areas will be revegetated using essentially the same methods and seed mixture. In order to evaluate revegetation success for reclaimed areas, areas identified as Disturbed or Reclaimed, and Pinyon-Juniper in the baseline evaluation will be sampled together as a unit and areas identified as Riparian in the baseline sampling effort will be sampled as a separate unit.

Cover and production values resulting from the revegetation success monitoring for the areas previously identified as Disturbed, Reclaimed, and Pinyon-Juniper will be compared with weighted average values based on the reference area values for the Disturbed, Reclaimed, and Pinyon-Juniper vegetation types. Weighting will be based on the corresponding acreages of each of the vegetation types (Disturbed, Reclaimed, Pinyon Juniper) which are actually disturbed. For the reclaimed (AMR Reclamation) vegetation type, the Royal Refuse Pile will be utilized as a reference area. For those areas identified as Riparian in the baseline evaluation, cover and production data from the revegetation success monitoring will be compared with corresponding baseline information for the riparian community. The statistical comparison utilized to evaluate revegetation success will be based on the "t-test comparison" method. If the absolute values for cover and production for the reclaimed areas are greater than or equal to the calculated 90 percent confidence interval for the baseline data (Riparian), weighted average based on the baseline data (Disturbed), and reference area values (Pinyon-Juniper and Reclaimed) then the mean values for the designated revegetation success parameters can be considered to be statistically equivalent and it can be concluded that the applicable revegetation success criteria have been achieved.

For woody plant density, revegetation success monitoring data will be compared with a reclamation standard of 1,700 plants per acre for areas identified in the baseline sampling as Disturbed, Reclaimed, or Pinyon-Juniper and 4,000 stems per acre for the Riparian bottom areas. Consistent with cover and production sampling, if the absolute values for woody plant density for the reclaimed areas are greater than or equal to the calculated 90 percent confidence interval for the numeric standards then the mean values for the designated revegetation success parameters can be considered to be statistically equivalent and it can be concluded that the applicable revegetation success criteria have been achieved.

General revegetation requirements under applicable UDOGM regulations include consideration of erosion control, and vegetative diversity, seasonality, and permanence. In order to address these secondary considerations relative to revegetation success, PMC proposes the following secondary success standards:

Erosion Control - Formation of rills and gullies on reclaimed areas will be limited to a maximum of 0.75 feet in depth. General erosion will be evaluated using Mark H. Humphrey's Erosion Condition Classification System (Draft 12/5/90) as adapted from BLM's Erosion Condition Classification System (BLM Technical Note - Number 346)

Vegetative Diversity and Permanence - Premining and postmining values will be compared using Sorenson's Similarity Index as outlined in the UDOGM Vegetation Guidelines

Seasonality - Seasonality of reclaimed plant communities relative to premining conditions will be evaluated by comparing percent composition of warm season plant species

Success evaluations for these secondary criteria will be based on the same weighting approach for non-riparian vegetation types as previously discussed for the evaluation of the primary parameters of vegetative cover and production.

5.3.3 Habitat Enhancement Plans

Given the proposed postmining land use of industrial and wildlife habitat and the extent of pre-mining site disturbance with the related constraints on wildlife habitat values, PMC as

part of their overall reclamation plans have restored and enhanced site conditions in the wildlife habitat land use area where reasonably possible to improve the habitat value and benefit for wildlife. In addition to the general reclamation measures and practices which were implemented on completion of mining as described in the preceding sections, PMC implemented supplemental wildlife habitat enhancement measures as discussed in the following sections.

5.3.3.1 Habitat Restoration and Enhancement Measures

Restoration of surface disturbance areas were ultimately achieved by backfilling, grading, drainage reestablishment, soil/substitute replacement, and revegetation to a configuration and condition consistent with the postmining land uses. The habitat restoration and enhancement measures discussed in this section were completed when the mine was in production and not as part of site reclamation in 2004. Hence, the benefits of these efforts have already been realized.

The loss or modification of aquatic habitat in the two segments of Willow Creek which were realigned were replaced by similar habitat values in the realigned channel segments. The realigned segments provide a mixture of riffle and pool habitat at a pool/riffle ratio of about 0.5 to 1.0 (length), which represents the upper range of existing ratios in the stream. The main objective of the stream restoration plans was to create quality pool habitat in terms of depth, length, and cover. Pool habitat was created by flattening the stream gradient and using a concentration of boulders at the lower end of pool reaches. Channel banks were stabilized by planting riparian vegetation along the banks and placing boulders and rip-rap in areas subject to erosion, consistent with stream restoration practices outlined in a guidance document for stream bank stabilization (Binns, 1986). The riparian vegetation provides effective cover for fish and aquatic species. The substrate composition in the new channel segments is clean rubble, boulders, and gravel. Boulders were placed in a manner that allow fish movement throughout the realigned stream segments. Construction activity for the realigned channel segments was scheduled during the low flow period to minimize increased sedimentation and downstream transport in the existing stream.

In addition to commitments made relative to the realignment of Willow Creek PMC also committed to an additional mitigation effort. On September 7, 1999, PMC fulfilled its mitigation responsibility when it acquired a 40 acre parcel of land from Carbon County and deeded it to the UDWR for inclusion into their wildlife winter range in Gordon Creek (Exhibit 6).

5.3.3.2 Revegetation Measures for Wildlife Habitat Enhancement

The UDWR has developed a variety of seed mixes and seeding recommendations for various areas, conditions, and wildlife habitat restoration objectives. These recommendations were reviewed in developing the permanent reclamation seed mixture and a number of the species selected for the seed mix were included because of their value for habitat restoration as outlined by the UDWR recommendations.

Placement of Rock Piles - Piles of rocks and large boulders were placed randomly on the surface as a result of deep gouging. These rocks and boulders serve as shelter for reptiles and small mammals and temporary perches for raptors and other birds.

5.3.3.3 Provisions for Protection and Reporting of any Threatened, Endangered, or Sensitive Species

Compliance with the Endangered Species Act

Based on available baseline and other resource information, there are no known threatened, endangered, or sensitive plant or animal species or related critical habitat values within the Willow Creek permit or adjacent areas which were impacted by reclamation activities. The specific protection and mitigation measures discussed in Section 4.3.3.3, Measures to Stabilize and Minimize Erosion from Mine Disturbance Areas, will effectively limit the effects of sedimentation and erosion on threatened and endangered fish species in downstream portions of the Price, Green, and Colorado Rivers. Since the closest known occurrence for any listed fish species is in the Green River which is approximately 70 miles from the mine area, any minor increases in sedimentation due to reclamation and related activities resulted in negligible impacts.

5.4 RECLAMATION OF MINING DISTURBANCE

5.4.1 General Description of Reclamation

This section presents and describes reclamation practices that were used to restore disturbed areas, outside of the Industrial postmining land use area, resulting from mining and related activities to productive self-sustaining use. The as-built reclamation is shown on Maps 21A - AB through 21E - AB, 21G - AB, 22A - AB and 22B - AB. Information in this section was developed in accordance with applicable regulatory requirements (R645-301-500) for coal mine permitting in the State of Utah.

5.4.1.1 Applicable Regulatory Sections Addressed

Specifically, this section addresses Rules R645-301-511, 541 through 553, and 560. The following cross-references headings and corresponding information presented in this section to the applicable regulatory provisions;

<u>Permit Section</u>	<u>Applicable Regulatory Requirements</u>
5.4.1	
5.4.1.1	General Introductory Information
5.4.1.2	R645-301-511.300 and 541.100 through 400
5.4.1.3	R645-301-553.500 through 524, and 553.600 through 653
5.4.1.4	R645-301-512.200 through 260 and 515.320 through 322
5.4.1.5	R645-301-512.200 through 260 and 542.200 through 320
5.4.2	
5.4.2.1	R645-301-542.100 and 500
5.4.2.2	R645-301-541.100 through 400 and 542.200
5.4.2.3	R645-301-542.300 through 800, 550 through 553.900, and 560
5.4.3	R645-301-542.800
Maps	R645-301-512.200 through 260 and 542.200 through 320
Exhibits	R645-301-542.800

5.4.1.2 General Reclamation Objectives and Activities

The goal of final reclamation is to restore disturbed areas to a safe, stable condition and to reestablish the productivity of the land consistent with the postmining land use(s). The postmining land use of industrial and wildlife habitat reflect the predisturbance use of this and adjacent areas, existing land use plans and policies, the desires of affected surface landowners, and practical constraints relative to land use capability and condition. Specific land use considerations and constraints are discussed in Section 3.4, Land Use Information. The Willow Creek Mine reclamation has been performed to successfully meet the objectives discussed in Section 3.4 and will result in effective temporary stabilization, and a postmining

configuration which blends with the surrounding terrain and provides environmental values consistent with or superior to those which existed prior to mining.

Reclamation involved a logical sequence of activities to achieve the overall reclamation objectives in an organized progressive manner. The following represent the general steps applied for reclamation of the mine and mine related surface disturbance areas:

- Stabilization and Sealing of Mine Openings
- Facility Demolition and Removal
- Disposal of Coal Refuse, Non-Coal Wastes, and Mine Waste Materials
- Backfilling and Grading to Establish the Final Design Configuration and removal of Sedimentation Ponds and Associated Structures
- Drainage Reestablishment
- Road Removal
- Soil/Substitute Replacement
- Revegetation
- Post-Reclamation Management, Maintenance, and Monitoring

These activities are discussed in detail in the following sections.

5.4.1.3 Proposed Variances from Regulatory Standards

Due to previous mining, limited space and other disturbance of the area there was not sufficient available spoil to completely backfill all highwalls. Given that the Willow Creek development activities effectively constituted remining of the previously disturbed areas which included a preexisting highwall, under the applicable regulatory provisions dealing with remining of previously mined areas (R645-301-553.500 through 650). Since the requirements of Rule R645-301-553.500 apply, a variance from the AOC restoration requirements is not necessary. The Willow Creek Mine area was previously a mine that had been reclaimed by AML. The highwalls of the reclaimed mine were not completely covered. As shown on Maps 21A - AB and the cross-sections on Map 22A - AB the portal highwall area has been covered to at least the same elevation as before the Willow Creek Mine was developed. The highwalls related to the long and short tunnels are shown on Map 21D - AB.

5.4.1.4 Certification and Reporting

Rule R645-301-512 specifies that certain designated cross-sections, maps, and plans be prepared by or under the direction of a qualified Registered Professional Engineer (PE) and that certain maps and design plans be certified by a PE. These cross-sections and maps have been certified as required.

5.4.1.5 Mapping of Reclamation Information

Information presented on the reclamation maps and cross-sections includes:

- Final surface configuration
- Postmining drainage features
- Location of any structures and facilities which will be retained as permanent structures
- Any structures and roads to be retained in conjunction with the postmining land use

5.4.2 Reclamation Practices

The reclamation practices used to reclaim the non-industrial portions of the site reflect the best current reclamation techniques and methods, taking into consideration site specific conditions and constraints. The following sections describe the timing and sequencing of reclamation activities, general reclamation requirements, and specific reclamation practices.

5.4.2.1 Reclamation Timing and Sequencing

Following the end of mining activities at the site all structures not needed for the industrial postmining land use, such as conveyor belts and ventilation fans, were removed. Final reclamation involved not only removal of all mine related structures and facilities not needed for the postmining land use but also, closure and sealing of portals and mine openings, disposal of waste materials, backfilling and grading, drainage reestablishment, road removal, placement of soil or substitute materials, and revegetation.

Following final reclamation of mine facilities, which was completed in August of 2004, the only disturbance that remains is that necessary to support the postmining industrial land use and any roads required to access any permanent drainage or other structures. These structures will remain in place to provide access during the extended liability period and to support the post mining industrial land use. The drainage and sediment control plan uses alternative sediment control methods as the primary means of controlling erosion and sediment contributions. The Willow Creek Mine - As-built Topography and Drainage Structures Location Maps (21A - AB through 21E - AB) and Industrial Postmining As-built Treatment and Watershed Map (Map 21G - AB), show the drainage and sediment control features which will be retained during the reclamation liability period and support the postmining land use. Components of the drainage and sediment control plan are identified and discussed in detail in Attachment 1. Straw bales and/or silt fence structures were installed as deemed necessary prior to and during any reclamation activities to serve as a protective barrier between the reclamation areas and the Willow Creek buffer zone and/or channel. Shortly after the deep gouging and final mulching activities were completed, the temporary silt fences and/or straw bales were removed, whereby treatment of the reclaimed site will be the ASCMs presented in Section 5.5.2.4 and in Attachment 1, Section 4.5.2.

5.4.2.2 Reclamation Plan

Beyond the general reclamation objectives of restoring disturbed areas to a safe, stable condition and reestablishing the productivity of the land consistent with the postmining land use(s), this reclamation achieved the following specific operational and environmental objectives:

- Removal of Mining Related Structures and Facilities
- Eliminate Potential Hazards
- Establish a Stable Postmining Configuration
- Restore Effective Drainage
- Establish a Productive Self-Sustaining Vegetation Community
- Support the Industrial Postmining Land Use

The following sections briefly describe important considerations and the rationale behind each of these specific objectives.

Removal of Mining Related Structures and Facilities

Given that many of the existing mining and related surface structures are not generally compatible with the proposed postmining land use of industrial and wildlife habitat, these

structures and facilities were removed. All or portions of the Willow Creek mine surface facilities area, Castle Gate preparation plant and loadout areas, and Crandall Canyon surface facilities have been reclaimed. Structures specific to mining activities such as conveyor belts, ventilation fans, stacking tubes, etc. have all been removed from the site.

Eliminate Potential Hazards

On completion of mining operations there were a number of mining related features and some materials which, if not properly addressed, could pose a potential health or safety hazard to both humans and wildlife. Potentially hazardous features included certain mine structures, portals and other mine openings, and steep slopes, and highwall areas.

Mine structures not compatible with the postmining land uses were removed and associated disturbance areas reclaimed, effectively eliminating any potential associated hazards. As part of the final reclamation activities, all portals and other mine openings were stabilized, sealed, and the associated disturbance areas backfilled, graded, and reclaimed. Similarly, the highwall area was backfilled to at or above the elevation of the fill prior to development of the Willow Creek Mine thus eliminating or minimizing potential related hazards.

Evaluation of coal roof and floor materials and overburden/interburden materials along with samples of existing coal refuse and mine waste materials indicated no significant toxicity concerns relative to these materials. In addition, specific reclamation placement methods were used to control or minimize any potential toxicity concerns for both coal refuse and mine waste materials. As described in Section 4.5.2.3, Mine Structures and Facilities, under the subtitle of Non-Coal Waste Disposal, all non-coal wastes were collected and stored in appropriate containers and were disposed of off-site by a licensed contract disposal firm. This included any non-coal wastes remaining on completion of mining operations with the exceptions of concrete demolition debris, road surfacing materials, and minor amounts of steel resulting from facility removal which was placed and buried at the mine facilities or preparation plant areas. Off-site disposal of most non-coal wastes and the disposal measures used for demolition debris effectively eliminate any potential associated hazards.

Establish a Stable Postmining Configuration

Following removal of mining related structures and facilities and closure and sealing of portals and mine openings the associated surface disturbance areas were backfilled and regraded to establish a stable postmining configuration which blended with the surrounding terrain, provides for effective drainage, and was consistent with the postmining land uses of industrial and wildlife habitat. Given that the mine face-up area, railroad grade, rock tunnels, and several cut slopes represent existing disturbance and that available fill material was limited to the existing fill bench backfilling was limited to the materials available consistent with applicable remaining provisions of the State of Utah Coal Mining Rules (R645-301-553.500 through 650). To the extent possible the disturbed areas were backfilled and regraded to blend with the surrounding terrain. Highwalls were covered to the pre-Willow Creek Mine elevation. Any exposed coal seams were covered with a minimum of 4 feet of suitable cover material.

Restore Effective Drainage

In conjunction with final backfilling and regrading activities, permanent drainage features, designed to pass the peak flows from the 10 -year, 6-hour event, were established to effectively pass natural drainage through the reclaimed areas and provide for effective control of runoff from reclaimed areas while minimizing the potential for any significant erosion. Significant parts of the operational drainage system were left in place, including Sediment Pond 001, for the industrial land use area. Thus, runoff from the industrial area will continue to flow to Sediment Pond 001 for treatment.

Establish a Productive Self-Sustaining Vegetation Community

Consistent with the postmining land use of wildlife habitat, PMC will reestablish a self-sustaining vegetation community composed primarily of indigenous native species but also including adaptive introduced species as appropriate to provide for rapid reestablishment, productivity, and species diversity. Activities related to vegetative reestablishment included replacement of available soil or substitute materials, deep gouging, addition of hay to the soil, seedbed preparation, seeding with the appropriate revegetation seed mixture, and application of mulch and tackifier to minimize erosion and provide an opportunity for initial vegetative establishment.

Support the Industrial Post Mining Land Use

The mine site bathhouse, warehouse, maintenance shop, storage areas, parking, roads and other ancillary support facilities remain to support the industrial postmining land use. Runoff control structures will remain to divert runoff around and through the industrial site and any precipitation coming in contact with the industrial site will be conveyed to sediment pond 001 for treatment to minimize the threat of water diminution or pollution. Section 3.4.5 provides the supporting information for the industrial postmining land use. Attachment 6 to this exhibit provides the documentation supporting the actual achievement of the industrial land use.

5.4.2.3 Reclamation Practices

The following sections provide a detailed description of the specific reclamation practices used for reclamation of the disturbed areas associated with the Willow Creek Mine. It should be noted that the following discussions focus on the mine facilities area since the Castle Gate preparation plant and loadout areas have already been reclaimed and bond release applied for.

Hydrologic Monitoring

PMC will continue its comprehensive program to monitor surface quality and quantity over the duration of the proposed reclamation operations and through the extended liability period. Table 4.7-1, Willow Creek Mine - Hydrologic Monitoring Stations, summarizes the type, location and geology. The reclamation phase monitoring compliance list is presented in Table 4.7-2, Hydrologic Monitoring Program - Water Quality Analysis Parameters. Table 4.7-3, Sampling Frequency summarizes the frequency of data collection and submittal, in accordance with applicable UDOGM guidelines.

Facility Demolition and Removal

Equipment and facilities not consistent with the postmining land use have been demolished or removed from the site. Some of the equipment and facilities were salvagable. Equipment and facilities that were salvaged were dismantled and removed from the site by PMC, a buyer, or private salvage contractors. Disassembly and demolition of remaining equipment and structures involved dismantling or cutting equipment, steel structures, and other large components into pieces which could be readily handled by mobile equipment; using heavy equipment, and cutting torches to break-up structural concrete members, exposed foundations, and masonry structures; ripping and removal of road surfacing materials; and removal of buried foundations and utilities to at least 4 feet below the design reclaimed surface.

Nonhazardous and nonflammable materials, such as concrete, asphalt, and steel were incorporated into the backfill and used as fill in areas such as highwalls and cut slopes. These materials were incorporated into the backfill in a manner that did not create voids within the backfill or reduce the effective compaction necessary for backfilling. These materials were intermixed with backfill to ensure that voids were filled and compacted.

Additionally, the top four feet were clean and did not contain non-coal waste. Concrete slabs or foundations buried in-place were covered with a minimum of four feet of fill to ensure adequate root depth and soil moisture retention for vegetation. Whenever possible, steel was salvaged rather than buried. However, rebar or other steel that is incorporated in the concrete was not removed from the concrete prior to burial.

Other non-coal wastes found during demolition (or other reclamation activities) including, but not limited to: grease, lubricants, paints, flammable liquids, garbage, abandoned mining machinery, lumber, and other combustible materials generated during previous mining activities were stored in a controlled manner in a designated portion of the mine's disturbed area. Final disposal of non-coal mine wastes was at a State approved solid waste disposal facility. Notwithstanding any other provisions of the R645 Rules, any non-coal mine waste defined as "hazardous" under 3001 of the Resource Conservation and Recovery Act (RCRA) and 40 CFR Part 261 was handled in accordance with the requirements of Subtitle C of RCRA and any implementing agency.

Stabilization and Sealing of Mine Openings

On completion of mining and related activities, all mine openings including portals, shafts, raises, boreholes, and wells were sealed unless they are to be utilized for ongoing monitoring or in conjunction with the postmining land use. Methods used for sealing wells and boreholes are presented and described in Section 4.6.1, Geologic Protection Plans.

All underground mine openings, including the five main portals, the main ventilation raise, two existing shafts in Crandall Canyon, and the four portal openings on Rock Tunnels No. 1 and 2 were permanently sealed and backfilled. These openings were permanently sealed to prevent access to the underground workings and, in the case of the mine openings, to provide an effective hydraulic seal to prevent surface drainage and infiltration through the backfill from entering the underground mine workings. Portals, except for the 4 openings at Rock Tunnels No. 1 and 2, were sealed and stabilized by constructing a concrete block wall approximately 10 to 25 feet in by the portal openings. The two layer thick solid block wall, which was constructed as illustrated by Figure 5.4-3, Typical Portal Seal, was keyed into the mine entry at least 6 inches on all sides and, for the mine portals, an MSHA approved sealant was applied to the outer surface of the barrier to provide a positive water seal. The rock tunnel openings were backfilled in accordance with 30 CFR 75.1711-2 as required by MSHA.

In order to assure the long-term integrity of the mine portal seals, PMC, as part of the MSHA roof control plan, maintained adequate barrier pillars and utilized appropriate roof support including timber or concrete cribs, posts, roof bolts, trusses, or other supports to minimize subsidence and collapse or caving of the mine workings in the vicinity of the portal seals. Once the portals seals were in place, the remaining void space between the seals and the portal opening was backfilled.

The ventilation raise was sealed by completely backfilling the raise during backfilling and grading.

Disposal of Coal Refuse, Mine Waste, and Non-Coal Waste

As described in Section 4.5.2.2, General Description of Mine Plans, Mining Methods, and Related Design Requirements, under the subtitles of Mine Development Waste Handling and Disposal and Coal Processing Waste Handling and Disposal, both mine waste and coal processing waste or coal refuse was placed in the Schoolhouse Canyon coal refuse stockpile. Prior to reclamation of the mine site and refuse stockpile any coal refuse was taken to the refuse pile.

Pre-mining coal waste and coal waste mixed with soil located in the embankment of Pond 001 (Exhibit 11) will remain in-place since sediment pond 001 will be used in association with the industrial land use. This material is currently covered with at least 3 feet of clean soil. Section 5.4.2.2 "Eliminate Potential Hazards" in the M&RP discusses the evaluation of samples of existing coal refuse and mine waste materials and concluded there were no significant toxicity concerns related to these materials.

All non-coal wastes were collected and stored in appropriate containers and were disposed of off-site by a licensed contract disposal firm as described in Section 4.5.2.3, Mine Structures and Facilities, under the subtitle of Non-Coal Waste Disposal.

Backfilling and Grading to Establish Final Configuration

Following completion of mining and related operations and subsequent facility removal and sealing of mine openings the associated surface disturbance areas, not supporting the industrial postmining land use, were backfilled and regraded. As previously noted in Section 5.4.2.2, Reclamation Plan, there are a number of features in the mine facilities, preparation plant, and loadout areas which represent pre-mining disturbance. Some of these pre-mining features such as the long and short tunnels were used during the operational phase. Pre-mining disturbance features are shown on the Mine Surface Facilities Map, (Map 18A), and documented by Exhibit 7, Documentation of Existing Site Conditions, and include:

- Road cuts and bench cut in the Fire-Fighting and Mine Water Tank location
- Road cuts and fill bench in the Mine Ventilation Fan area
- Existing mine face-up area
- Fill bench and sidehill cuts in Run of Mine Coal Stockpile area
- Road cuts and bench cut in Potable Water Tank area
- Sidehill cuts along Conveyor SC-1 alignment
- Sidehill cuts and fills along most of the old railroad grade
- Rock Tunnels No. 1 and 2
- Cuts and fills along existing main access road to the mine facilities area

For many of the pre-mining disturbance features, backfilling and regrading to a pre-disturbance configuration was difficult if not impossible since they involve very steep sideslope cuts in competent or weathered rock and insufficient fill material exists within the Willow Creek disturbance area to completely backfill and regrade the existing disturbance. Given this constraint, backfilling and grading involved selective placement of all reasonably available spoil material consistent with applicable regulatory provisions for backfilling and grading (R645-301-553 through 553.200), previously mined areas (R645-301-553.500 through 524), and based on the following priorities:

1. Cover exposed coal seams, sealed mine openings, sealed rock tunnel openings, and any solid waste disposal sites with a minimum of 4 feet of suitable material
2. Backfill and/or regrade disturbed slopes to establish a stable configuration which provides for effective drainage and minimizes erosion potential
3. Backfill and regrade steep cuts and highwall areas to partially or completely eliminate cut or highwall exposures
4. Support the industrial postmining land use

The as-built reclamation configurations for the mine facilities area and those disturbance areas on the Castle Gate side which do not fall within the Castle Gate Exhibit 19, are shown by the Willow Creek Mine - As-Built Topography and Drainage Structures Location Maps, (Map 21A - AB through 21E - AB). These maps reflect an industrial postmining land use for much of the site. The areas adjacent to the long and short tunnels and the Pond 012A and 012B areas, on the Castle Gate side, were not included in the industrial land use area, and

have been reclaimed to establish stable slopes, promote effective drainage, and blend the reclaimed areas with the surrounding terrain. Areas within the industrial land use area not consistent with the industrial land use were also reclaimed. These areas include: the ventilation fan area and the portal area.

Comparison of the land configuration prior to site development, on the Facilities Area Soils Map, (Map 4,) with the as-built postmining topography shown on the Willow Creek Mine - As-built Topography and Drainage Structures Location Maps, (Map 21A - AB through 21E - AB), and the Willow Creek Mine - Premining, Operational and Postmining Cross-Section Maps, (Maps 22A - AB and 22B - AB), indicates that the as-built postmining topography, outside of the industrial land use area, resembles the stable land configuration prior to the site development, and/or result in more stable slopes, reduced overall highwall and cut exposures, provide for more effective drainage, and offer better blending of the area with the surrounding terrain.

Backfilling and grading involved the use of tractor scrapers, tracked dozers, wheel loaders and trucks, and motor graders, as necessary to recover, move, place, grade, and compact backfill materials. Generally, backfill material were placed in relatively uniform lifts and compacted by normal equipment traffic. Backfilled areas were sloped and graded to promote effective drainage and to the extent operationally feasible long unbroken fill slopes were avoided to minimize sheet flow and the potential resultant erosion. Fill slopes were limited to a maximum slope of approximately 2H:1V (except at the portal highwall behind the shop). Final slopes vary dependent on material from less than 5H:1V to as much as 0.5H:1V in competent rock. Consistent with slope stability considerations as documented in Exhibit 11, Geotechnical Investigations, as-built slopes have a static factor of safety of at least 1.3 which complies with the minimum requirements of R645-301-553.130.

Backfilled slopes are concave in profile in most areas, which not only provides better hydrology characteristics, but also provides a more stable mass at the toe of the slope to resist failure and lessens the mass at the top of the slope that would drive a slope failure. To facilitate the industrial land use, backfilling of the portal highwall required overall slopes steeper than 2H:1V to eliminate the highwall to AML elevations. When reviewing that geotechnical investigations presented in Exhibits 11 and 22, the geotechnical properties of the native soil from the Willow Creek area demonstrate that concave reclamation slopes with a maximum slope of 1.3H:1V have a minimum safety factor of 1.3.

The reclamation slope for the portal highwall has an overall concave profile with a maximum slope of 1.3H:1V in a small area near the top of the slope. The slope will be stable with a minimum safety factor of 1.3. To insure the minimum safety factor is met for this fill slope, the soil material was placed in approximately 12-inch lifts and compacted. Moisture was added to the soils as conditions warranted to improve the compaction of the soil. The last 15 to 20 feet of the slope were placed by an excavator due to limited space. Due to the limited space the use of compaction equipment was deemed unsafe when placing the last 25 to 20 feet of fill. The compaction of the soil at the top of a slope is not critical to the slopes overall stability and not compacting this zone will not affect the long term stability of the slope.

All reclaimed areas were deep gouged, with the exception of a small area on the portal area slope that was too steep for equipment to gouge, to prevent erosion and promote the infiltration of precipitation to encourage vegetation re-establishment.

Under the applicable regulatory provisions dealing with the postmining land use reclamation scenarios for remining of previously mined areas (R645-301-553.500 through 650), the backfilling and grading operations utilized all available spoil material to eliminate remaining highwall and cut slope exposures to the maximum extent technically practical. Fill material placed against highwall and cut slope areas was placed and graded to assure long-term stability. As-built reclamation slopes will provide effective drainage control and be

compatible with both natural slopes in the area and the postmining land uses of industrial and wildlife habitat. Highwall and cut slope exposures remaining after backfilling and regrading are no more than 10 to 30 feet high, are in competent rock materials similar to the natural cliff exposures in the immediate area which range from 10 to over 100 feet in height, and have an aesthetic appearance and geomorphic characteristics similar to these natural rock exposures.

Drainage Reestablishment

In conjunction with final backfilling and grading activities, PMC established a postmining drainage configuration which is compatible with the postmining land use and with the natural drainage pattern of the surrounding terrain. This drainage configuration effectively routes natural drainage from upgradient areas through the reclaimed area with minimal erosion or increase in sediment concentrations, and effectively controls drainage and erosion in the reclaimed areas. The postmining drainage configuration is shown by the Willow Creek Mine - As-Built Topography and Drainage Structures Location Maps, (Maps 21A - AB through 21E - AB), As-Built Postmining Stream Profiles Map (Map 22B - AB), and Postmining As-Built Treatment and Watershed Map (Map 21G - AB). Additional discussion of postmining drainage reestablishment is provided in Section 5.5, Hydrologic Restoration.

Road Removal

Most roads within the mine facilities area remain to support the industrial postmining land use (Map 18C). All roads outside of the industrial land use area have been reclaimed with the exception of the Primary Road PR-3 in the Castle Gate preparation plant area. This road has been retained as a permanent road to provide continued access to existing facilities owned by Price City, Utah Power, Helper City, and Price River Water Improvement District. This road follows an existing right of way and utility easement for several existing water mains and a main sewer line. Road PR-3 follows the old County road right-of-way through Price Canyon and is used by several parties for access to areas to the north. Given continuing access requirements there is no justification for either removal of this road or modification to an ancillary road. All roads that have been reclaimed were unpaved roads that were removed during the regrading process. During regrading any culverts and ditches associated with removed roads were removed.

Soil/Substitute Replacement

During reclamation all stockpiled topsoil was used. The stockpiled topsoil was used, in conjunction with material excavated from the areas adjacent to the short and long tunnels, to cover the portals. Stockpiled topsoil was also used to reclaim the Refuse Pile. In areas where stockpiled topsoil was not used the existing soils were used as substitute growth media. The substitute growth media was enhanced using the methods described in Sections 5.2, Soil Replacement Plans, and 5.3, Habitat Restoration Plans.

Revegetation

Backfilling and grading created a stable topographic configuration which provides for effective drainage and blends effectively with the surrounding terrain. Soil replacement provides an effective vegetative growth medium. Revegetation was the final step in restoring disturbed lands to productive, self-sustaining use. As the final step in the reclamation process, all surface disturbance areas, except those associated with roads and the industrial postmining land use, were revegetated.

Revegetation efforts focused on establishment of effective vegetative cover as soon as reasonably possible following completion of regrading and placement of soil/substitute material in order to prevent loss or erosion of these materials. PMC selected a revegetation seed mixture to promote rapid vegetative establishment; assure good site adaptability;

provide vegetative cover and production values consistent with effective erosion control and postmining land use requirements; and establish a healthy self-sustaining vegetative community. Reseeding of the site occurred in August of 2004.

Post-Reclamation Management and Monitoring

PMC's objectives in managing reclaimed areas include interim inspection and maintenance to address any minor erosion, seeding failures, drainage problems, or other measures necessary to achieve the long-term goal of successful revegetation and drainage restoration consistent with the postmining land use of wildlife habitat. As part of the postmining management program, reclaimed areas will be inspected on a regular quarterly basis at a minimum for any indications of significant erosion, siltation, surface instability, drainage problems, seeding failure, weed infestations, or other conditions which could adversely impact reclamation success. Inspections will continue throughout the extended liability period to assure effective reclamation. Any problems identified as a result of these regular inspections will be addressed in a timely manner consistent with overall reclamation plans and practices.

The reclamation plan for the Willow Creek Mine has been implemented to prevent or minimize erosion and restore disturbed areas to a stable and productive condition and support postmining land uses. If despite PMC's best efforts, inspection of the reclaimed areas indicates that natural erosional processes are creating significant rills or gullies, PMC will implement appropriate remedial/protective measures within 60 days following identification of erosional features meeting specific depth criteria. In order to minimize any associated surface disturbance, the proposed erosion mitigation measures will reflect consideration of the nature and extent of erosional damage and are designed to be implemented in phases dependent on the severity of or potential for damage.

The lowest level of mitigation will be designed to prevent further damage and either repair damaged areas or establish surface controls which will facilitate repair through natural ongoing processes. For any areal erosion problems, where high overland flow velocities, steep slopes, or poor vegetative reestablishment have resulted in numerous rills and gullies twelve inches or more in depth, evaluation and mitigation will focus on upslope drainage control and stabilization of eroded areas. Various control measures may be implemented to limit upgradient flow volumes and velocities and stabilize eroded areas dependent on site specific conditions including supplemental grading of small upgradient areas to distribute flows over a larger area, placement of large riprap or other velocity dissipaters, selective placement of straw bales or sediment fences, application of erosion control netting or other materials, supplemental seeding, mulching, or combinations of these methods.

By limiting flow volume and velocities and stabilizing the effected areas, sediment loss will be reduced, features such as sediment fences and straw bales will trap and hold sediment to help repair erosional features, and problem areas can be stabilized over time. If inspection subsequent to application of the initial mitigation measures indicated that erosional problems are continuing, the number and density of control structures may be increased or more intensive controls including contour furrowing, upslope diversion, or additional backfilling and grading of problem areas may be implemented.

For isolated erosional problems, where channelization of surface runoff has resulted in the creation of one or more gullies one foot or greater in depth, both upslope drainage and the nature of the erosional damage will be evaluated and addressed as appropriate. If upslope drainage is the primary causative factor, localized measures to control flow velocities or distribute flow will be implemented including placement of straw bales or large riprap to

break up concentrated flows; establishment of berm or contour furrows to temporarily divert flows away from problem areas; and localized placement of fill, reseeded, and placement of straw bales, sediment fences, or erosion control materials to allow the damaged area(s) to stabilize.

Any seeding failures or weed infestations identified by the post-reclamation management inspections will be addressed during appropriate time periods to achieve optimal mitigation. Any areas where partial or complete seeding failure is indicated by limited vegetative reestablishment or excessive dominance of one or more species will be addressed by reseeding the effected areas during either the early spring or late fall. Essentially the same seeding methods will be utilized as for initial seeding with the exception of seedbed preparation. Any significant weed infestations will be addressed through consultation with UDOGM to determine appropriate control measures. If the controls determined through this consultation process involve the application of herbicides, only those chemicals approved for use by the appropriate State and Federal agencies will be considered and control practices will be limited to spot application at the appropriate time period for best control of the problem species.

Removal of Drainage and Sediment Control Structures

During reclamation of the Willow Creek Mine Facilities alternative sediment control measures (ASCMS) were used to reduce the quantity of sediment yield from the area. These ASCMS included silt fences, straw bale dikes, and temporary berms and ditches. All temporary silt fences, strawbale dikes, berms and ditches have been removed. In reclaimed areas the deep gouging and vegetation will control erosion. In the industrial areas the ditches, berms, culverts and Sediment Pond 001 will control sediment as permanent structures. The as-built postmining land use reclamation treatment is presented on Map 21G - AB.

5.4.3 Reclamation Bond Release

As a result of the postmining land use change most of the Willow Creek Mine area was changed to have an industrial land use. This area is to be sold to the College of Eastern Utah. As the land owner the College of Eastern Utah intends to make improvements to their property. PMC has reclaimed the site according to an approved reclamation plan and is requesting Phase III bond release for the property owned by the College of Eastern Utah with an industrial land use. PMC is requesting Phase I bond release for all areas outside of the industrial land use boundary. Bond release calculations can be found in Attachment 3.

5.5 HYDROLOGIC RESOURCE RESTORATION

This section describes the plan for restoration of hydrologic resources in the permit and adjacent areas that could potentially be affected or impacted by the mining and reclamation activities. Information in this section was developed in accordance with applicable regulatory guidelines (R645-301-700) for coal mine permitting in the State of Utah.

5.5.1 General Description of the Hydrologic Restoration Procedure

5.5.1.1 Applicable Regulatory Sections Addressed

Specifically, this section addresses Reclamation Procedures (Rule R645-301-760). The following table cross-references the headings and corresponding information presented in this section to the applicable regulatory provisions:

<u>Permit Section</u>	<u>Regulatory Provision Addressed</u>
5.5	R645-301-700
5.5.1	R645-301-700
5.5.1.1	Not Applicable
5.5.1.2	R645-301-760 and 761
5.5.2	R645-301-760, 764
5.5.2.1	R645-301-761 and 764
5.5.2.2	R645-301-761
5.5.2.3	R645-301-762.100 and 764
5.5.2.4	R645-301-762.200 and 764
5.5.2.5	R645-301-763.100, 763.200, and 764
5.5.2.6	R645-301-764 and 765

5.5.1.2 General Hydrologic Restoration Requirements

Before abandoning the Willow Creek mine area or seeking final bond release, PMC will meet applicable regulatory requirements.

5.5.2 Hydrologic Restoration Procedure

All areas disturbed by mining and related operations, that are not within the industrial use boundary, have been reclaimed. PMC incorporated specific control and mitigation measures in mining, processing, and reclamation plans, when the mine was in operation, in order to prevent any significant impacts on surface or ground water quality. All mining related activities including soil/substitute removal, mine development, coal recovery, mine sealing, backfilling and grading, topsoiling, and revegetation were designed and sequenced to minimize disturbance and progressed in a logical manner towards effective restoration of disturbed areas to pre-disturbance conditions. Reclamation involved backfilling and regrading disturbance areas, replacement of soil or substitute materials, and revegetation, re-establishment of drainage patterns similar to those existing in the premining environment, development of a self-sustaining vegetative community, and support of the postmining land

uses. As a result of effective reclamation, infiltration and runoff relationships have been restored.

As a component of the planned reclamation activities PMC established permanent postmining drainage structures to provide for effective drainage and sediment control during the extended reclamation liability period. Details of the as-built reclamation drainage control system are presented in Attachment 1, As-Built Reclamation Hydrology and illustrated by the Willow Creek Mine - As-Built Topography and Drainage Structure Location Maps, (Maps 21A - AB through 21E - AB), Postmining As-Built Treatment and Watershed Map (Map 21G - AB), As-Built/Operational and Postmining Cross-Sections Map (Map 22A - AB), and As-Built Postmining Stream Profile Map, (Map 22B - AB).

5.5.2.1 Removal and Reclamation of Temporary Structures

Diversion ditches and culverts not related to the industrial land use area or required to convey runoff below roads and railroad tracks have been removed. All sediment ponds with the exception of Sediment Pond 001 have been removed. Sediment Pond 001 remains to support the industrial land use area.

Reclamation of the sedimentation ponds that do not support the industrial postmining land use involved removal of any man-made discharge structures, removal and disposal of any riprap and bedding materials which will not be utilized in conjunction with reestablishment of post-mining drainages, grading of embankment fill into pond basin areas, and regrading associated disturbance areas to blend with the surrounding terrain. Replacement of soil and revegetation as described in Section 5.3, Reclamation Plan, will complete pond reclamation. Upon restoration of disturbed areas, the sedimentation ponds and water storage and treatment impoundments were removed and associated disturbance areas reclaimed. In addition, all reclaimed areas were regraded to reestablish natural drainage patterns and eliminate any significant depressions which could impound water.

5.5.2.2 Compliance of Permanent Structures

In conjunction with reclamation of all non industrial areas disturbed by mining and related activities, PMC has reestablished an effective postmining drainage configuration as shown on the Willow Creek Mine Postmining As-Built Treatment and Watershed Map, (Map 21G - AB). Postmining drainages have been built in compliance with requirements for permanent diversions and provide drainage distribution and density characteristics similar to the pre-disturbance environment. Anticipated runoff characteristics and site geomorphic considerations have been incorporated in the postmining drainage system to assure long-term stability, minimize erosion, and prevent significant additional contributions of suspended solids to area drainages. Effective restoration includes a determination of revegetation success and restoration of surface drainage characteristics such that contributions of suspended solids from reclaimed area runoff are within applicable water quality limitations. PMC has constructed permanent diversions to provide effective long-term drainage control for reclaimed areas.

5.5.2.3 Reclamation of Roads

Roads that will not be retained for use under an approved postmining land uses have been reclaimed. Reclamation of roads included reshaping of all cut and fill slopes to be compatible with post-mining land use and to compliment the drainage pattern of the surrounding terrain.

5.5.2.4 Restoration of Natural Drainage Patterns

As an underground mining operation, surface disturbance associated with Willow Creeks's mining activities was minimal relative to the overall permit area. However, where disturbance has occurred outside of the industrial land use area, PMC has reclaimed these areas using reclamation practices that restore normal infiltration and runoff characteristics comparable to premining conditions.

Reclamation involved backfilling and grading to stabilize the slopes, reestablishment of natural drainage patterns, topsoil replacement, and revegetation. PMC has also implemented backfilling and grading plans to effectively utilize available materials, support the postmining land use, and minimize disturbance of adjacent areas.

Permanent postmining drainages have been located to generally duplicate premining drainage patterns and densities and to effectively convey surface drainage flows. Postmining drainage channels and culverts are illustrated by the Willow Creek Mine - As-Built Topography and Drainage Structure Location Maps, (Maps 21A - AB through 21E - AB), Postmining As-Built Treatment and Watershed Map (Map 21G - AB), As-Built/Operational and Postmining Cross-Sections Map (Map 22A - AB), and As-Built Postmining Stream Profile Map, (Map 22B - AB). Verification calculations are found in Attachment 1 As-built Reclamation Hydrology.

Disturbance areas have been backfilled where necessary and regraded to establish a stable undulating configuration with relatively short gradual slopes which will blend with surrounding undisturbed terrain. Regraded surfaces have been left in a roughened condition to limit runoff and provide for an effective bond between the regraded materials and subsequently placed topsoil.

Reclamation was completed by revegetating disturbance areas to establish an effective vegetative cover which will control runoff, erosion, and provide effective habitat and grazing/forage values for wildlife and support the industrial postmining land use.

5.5.2.5 Maintenance of Siltation Structures

To avoid redisturbance of a significant portion of the Willow Creek Mine Facilities area in a future phase of reclamation, the operational hydrology sedimentation ponds 002, 012A and 012B were removed during the back filling and grading phase. Therefore, alternative sediment control measures (ASCMs) were implemented during reclamation of the site to reduce the quantity of sediment yield from the area. These ASCMs include the following practices in varying degrees:

1. Incorporation of hay mulch or other suitable substitute, with a high organic matter content into the growth media,
2. Deep gouging of the growth media,
3. Seeding the prepared soil,
4. Addition of more mulch following seeding, and
5. Chemically anchoring the final mulch layer.

Also, stream channels constructed during reclamation are armored or protected where necessary to provide long-term protection against channel erosion. Furthermore, areas that do not exhibit successful revegetation will be reseeded. Based on Simons, Li & Associates (1983), these methods are effective at controlling sediment yields for the purpose of mine reclamation.

The indicated ASCMs provide both mechanical treatment and surface protection. Mechanical treatment increases surface roughness, thereby reducing overland flow velocity and minimizing the sediment transport capacity. Detaining some of the would-be runoff also improves soil moisture for plant germination. Surface protection measures include mulching, mulch binders, seeding, and channel armoring. These measures minimize the amount of soil detached by raindrop impact, and thus limit soil loss at the source. Surface protection measures also increase the surface roughness and increase water infiltration into the ground.

Appendix H-4, in Exhibit 13, presents calculations that quantify the sediment yield that could be expected annually from the remaining disturbed area under the following conditions:

1. Pre-mining conditions,
2. Conditions immediately following completion of seeding and mulching, and
3. Conditions several years after reclamation has occurred.

These calculations were performed to compare the improvement after implementation of the ASCMs listed above against background levels. Assumptions used for the analysis of each time period listed above are provided in Appendix H-4.

As noted in the appendix, implementation of the ASCMs substantially reduce the amount of sediment eroded from the reclaimed areas. Pre-mining erosion at the site is estimated to have occurred at a rate of 4.14 tons per acre per year. Immediately after completion of seeding and mulching, with fresh mulch on the surface of the site, erosion is estimated to occur at a rate of 0.16 tons per acre per year. Following establishment of the vegetative cover (i.e., after weathering and degradation of mulch), the erosion rate is estimated to be 3.80 tons per acre per year. Hence, reclamation of the site will reduce soil loss below that estimated to have occurred prior to disturbance.

The configuration of all reclaimed areas falls within the range of values used for the sediment yield calculations in Appendix H-4 with the exception of the fill slope used to cover the highwall. Due to the limited space and the requirement that the highwall be covered to the same elevation as before the Willow Creek Mine was developed the slope exceeds the 2:1 slope assumed in the calculations in Appendix H-4. A discussion of the stability of the portal area fill slope can be found in Attachment 4, Portal Area Fill Slope Stability.

During regrading and installation of reclamation channels but before final seeding and mulching occurred, temporary silt fences or temporary straw-bale dikes were installed to control sediment. Silt fences were installed in accordance with Figure 13-12. Straw-bale dikes were installed in accordance with the recommendations of Barfield et al. (1981). Once an area was reseeded and mulched, the applicable silt fences or straw-bale dikes were removed since, as indicated above, final mulching will reduce sediment yield below pre-mining levels.

The reclaimed area will be inspected quarterly to evaluate the effectiveness of the ASCMs. Corrective action will be taken when a gully greater than 9 inches in depth is created. This corrective action will consist of identifying the cause, remedying the cause, working the ground surface sufficiently to fill the adjacent gully, and reseeding and mulching if necessary to reestablish vegetation. Any reseeding and mulching will be determined in cooperation with the Division.

5.5.2.6 Casing and Sealing of Wells and Mine Openings

The portals have been sealed and covered as described in Section 5.4 of this exhibit.

EXHIBIT 23

**ATTACHMENT 1
AS-BUILT RECLAMATION HYDROLOGY**

**EXHIBIT 23
ATTACHMENT 1**

TABLE OF CONTENTS

<u>Section No.</u>	<u>Page No.</u>
4.5 POSTMINING DRAINAGE DESIGN	1
4.5.1 Reclamation	1
4.5.2 Alternative Sediment Control Measures	3
4.5.3 Reclamation Hydrology	4
4.5.3.1 Reclamation Channel Design	4
4.5.3.2 Reclamation Culvert Design	5
4.5.3.3 Reclamation Sedimentation Ponds	6
5.0 LITERATURE CITED	7

LIST OF TABLES

<u>Table No.</u>	<u>Description</u>
1	As-Built Reclamation Watershed Drainage Characteristics
2	As-Built Reclamation Curve Number Summary
3	As-Built Reclamation Drainage Channel Summary
4	As-Built Reclamation Drainage Culverts

This attachment has been organized such that the section numbers in this document correspond to Section 4.5 in Exhibit 13 which discusses the postmining drainage design. This attachment has been organized in this manner to allow easy comparison of the commitments in Exhibit 13 to this as-built reclamation hydrology text. Hence, the section numbers in this attachment start at 4.5, which corresponds to the related section in Exhibit 13, rather than Section 1.0.

4.5 AS-BUILT POSTMINING DRAINAGE

Reclamation of surface disturbance areas occurred following the cessation of mining operations. An integral part of the Willow Creek Mine reclamation is the postmining drainage configuration. Objectives of the reclamation activities involved stabilizing surface disturbance areas, minimizing erosion, restoring the natural drainage pattern, limiting potential adverse surface water impacts, and supporting the post mining industrial and wildlife habitat land uses.

The postmining drainage configuration is compatible with the natural drainage pattern of the surrounding terrain and with the industrial and wildlife postmining land uses. Additionally, it effectively routes natural drainage from undisturbed upgradient areas through the reclaimed surface facilities area with minimal erosion or increases in sediment loading. In the industrial land use area the operational ditches, culverts and sediment pond have been left in place to control storm water runoff. All runoff from the industrial area will flow to Sediment Pond 001 for treatment. This section describes the as-built reclamation drainage configuration for the reclaimed Willow Creek Mine.

4.5.1 As-built Reclamation

The as-built postmining reclamation topography for both the Willow Creek area and the Pond 12A and 12B area which is adjacent to the Castle Gate Preparation Plant are shown on Maps 21A - AB through 21E - AB, As-built Topography and Drainage Structure Location Map. The As-built Willow Creek Mine reclamation is further described in Exhibit 23. Section 5.4.2.3 of Exhibit 23 specifically discusses hydrologic monitoring, facility demolition and removal, backfilling and grading, drainage reestablishment, soil replacement, revegetation, post-reclamation management and monitoring, and the removal of drainages and sediment control structures.

Required grading work was completed in order to establish a stable postmining configuration which supports the postmining land uses, blends with the surrounding terrain and provides for effective overland flow drainage patterns. Operational conditions in the Willow Creek mine-surface facilities area reflected previous mine-related disturbance. Since the pre-mining configuration represented a disturbed landform, PMC modified the surface configuration during reclamation in order to establish an effective drainage pattern and blend the mine surface facilities area into the adjacent, undisturbed topography. Maps 21A - AB through 21E - AB, As-Built Topography and Drainage Structures Location Map, display the as-built postmining topographies for the Willow Creek areas.

The land configuration in the mine surface facilities area adjacent to the Castle Gate Preparation Plant is very steep and was disturbed by previous activities. PMC blended the disturbed area into the existing adjacent topography to create a landform which resembles the surrounding topography. However, some previously disturbed areas, not used by PMC, were not reclaimed. The postmining topography for the Willow Creek Mine surface facilities area which is adjacent to the Castle Gate Preparation Plant is shown on Map 21E - AB, As-Built Topography and Drainage Structures Location Map. The previously disturbed area that was not reclaimed is identified a pre-

SMCRA disturbance on this map. Backfilling and grading during reclamation are discussed in Section 5.4.2.3 in Exhibit 23.

As a component of reclamation activities PMC established permanent postmining drainage structures to provide for effective drainage and sediment control during the extended reclamation liability period and support the industrial and wildlife habitat postmining land uses. No temporary channels were built during reclamation, all constructed channels will be permanent, refer to Sections 5.4.2.2 and 5.5 of the Exhibit 23.

To limit erosion and sediment loading of Willow Creek PMC used alternative sediment control measures (ASCM's). The alternative control method technologies are described in Section 4.5.2 and in Section 5.5.2.5 of Exhibit 23.

Except for sedimentation pond 001 which will treat storm water runoff from the industrial post mining land use area, sedimentation ponds were not retained for sediment control. Siltation fences and/or straw bales controlled sediment during rough grading and permanent alternate sediment control measures currently control sediment. Straw bales and/or silt fence structures were installed as deemed necessary prior to and during any reclamation activities to serve as a protective barrier between the reclamation areas and the Willow Creek buffer zone and/or channel. In addition to the silt fences and/or straw bales used during rough grading the sediment ponds and operational drainage ditches were left in place as long as feasible, to control sediment during the rough grading. Upon completion of the final/permanent sediment control treatment measures of deep gouging and mulching, the temporary sediment control structures were removed. The alternative control methods are described in Section 5.5.2.5 of Exhibit 23 and in Section 4.5.2 of this attachment.

All constructed channels are permanent and are verified as being able to handle the 10-year 6-hour storm event as specified in regulation R645-301-742.333. Channels were excavated during rough grading, following which, the filter and riprap was installed. A more detail discussion of the reclamation channels can be found in Section 4.5.3 of this attachment.

Alternate sediment control measures used are discussed in Section 4.5.2 of this attachment. Following installation of channels and ASCMs the site was seeded as described in Section 5.3 of Exhibit 23.

PMC will continue its comprehensive hydrologic monitoring program during reclamation. Activities specified for the reclamation phase hydrologic monitoring program, including the monitoring network and the parameter compliance list are presented in Sections 4.7.2 and 5.5 of the M&RP.

Hydrologic monitoring will occur on Willow Creek and the Price River upstream and downstream of the former mine surface facilities area to demonstrate the success of PMC's reclamation plan.

The proposed reclamation hydrologic monitoring parameter compliance list to be used during the bond period can be seen on Table 4.7.2 in the M&RP.

4.5.2 As-built Alternative Sediment Control Measures

The mine surface facilities area is primarily located within a narrow strip of land along the north bank of Willow Creek. Two additional areas, however, all relatively small in size were disturbed by mine surface facilities construction. One area, the office trailer area and Willow Creek topsoil stockpile area, was located along the south side of Willow Creek, between State Highway 191 and Willow Creek. The second area, the west portal of the long tunnel, Pond 012A and 012B area and

associated access roads are located along the east bank of the Price River south of and adjacent to the Castle Gate Preparation Plant area.

PMC utilized alternative sediment control measures (ASCM's) as the primary means to control erosion and sediment yields from the disturbance areas Map 21G - AB Postmining As-Built Reclamation Treatment and Watershed Map, displays the mine surface facilities areas where PMC used ASCM's as the primary sediment control measures during reclamation.

The following alternative control methods were utilized individually or in combination to limit and control erosion and sediment runoff:

- Incorporation of hay mulch or high organic content material into growth media,
- Deep gouging,
- Seeding,
- Additional mulch following seeding,
- Anchoring mulch by use of a tackifier.

These methods are considered the best available control technology for mine reclamation applications.

The alternative sediment control measures can be classified into three categories: mechanical treatments, surface protection measures, and vegetation. Mechanical treatments, such as deep gouging, increase surface roughness thereby reducing overland flow velocity, and minimizing sediment transport capacity. Reduction of runoff also increases soil moisture for plant germination. Surface protection measures include mulch, mulch binders, seeding, and rock armoring. These measures are the most effective controls since they minimize the amount of soil exposed, reducing soil detachment by raindrop impact, and thus limit soil loss at the source. Surface protection measures also increase surface roughness and increase water infiltration. Vegetative sediment filters reduce overland flow velocities, remove fine sediment from overland flow, and control erosion on the disturbed areas. Mechanical treatment will consist of deep gouging. Deep gouging consists of a rough surface with irregular ridges and depressions. Deep gouging loosens the soil to allow root penetration and increased moisture storage. This will allow vegetation re-establishment, which will reduce erosion. Deep gouging also reduces the length of potential flow paths and limits flow velocities, thereby reducing the sediment carrying capacity of the runoff. Deep gouging creates many small pockets or depressions which trap runoff and reduce overland flow. These depressions also encourage water infiltration providing for increased soil moisture storage.

Prior to, and during deep gouging approximately 2 tons per acre of hay or high organic content mulch were incorporated into the growth media. The mulch adds organic matter to the soil as well as increases the capacity of the soil to hold water. Increasing the water holding capacity of the soil reduces the amount of runoff and thereby the amount of sediment generated.

Mulching significantly reduces the amount of sediment yield from an area (Simons, et al., 1983). Mulching also helps retain moisture to allow for seed germination. Mulching is particularly valuable in protecting seeded areas from the high intensity, short duration storms common to this area (USDA- USFS, 1979). The rainfall intensity factor for the 10-year, 6-hour storm event in the Willow Creek area is 0.61 inches per hour (EarthFax, 1995). A mulch application rate of 0.9 tons per acre is required to prevent soil loss from rainfall with a rainfall intensity factor of 0.61 inches per hour (Simons, et al., 1983). To assure that the mulch will remain in place, it was applied at the rate of 1.5 tons per acre and tacked in place with a chemical binder.

Permanent plant growth is the best method of controlling erosion from slopes (Simons, et al., 1983). Upon completion of the grading and mechanical treatment of the soil, reclaimed areas were seeded with permanent seed mixtures. The seedbed preparation and seeding activities, including the seed mixtures are discussed in Section 5.3.2.2, Revegetation Practices, and Section 5.3.2.3, Revegetation Species and Amounts in Exhibit 23.

Calculations which support the use of alternative sediment control measures for controlling erosion and sediment production can be found in Appendix H-4 of Exhibit 13.

The ASCM's will be inspected quarterly or after every major storm event. Any corrective actions taken, will be recorded. Any necessary modifications to the sediment control plan indicated by those inspections will be implemented in a timely manner. Corrective action will be taken when a gully greater than 9 inches in depth is created. This corrective action will consist of identifying the cause, remedying the cause, working the ground surface sufficiently to fill the adjacent gully, and reseeding and mulching if necessary to reestablish vegetation. Any reseeding and mulching will be determined in cooperation with the Division.

4.5.3 As-built Reclamation Hydrology

The postmining drainage configuration is compatible with the existing natural drainage patterns. The drainage pattern will effectively route natural drainage from undisturbed areas through the reclaimed area with minimal erosion or sediment loads. Maps 21A - AB through 21E - AB, As-Built Topography and Drainage Structures Location Map, shows the as-built postmining drainage configuration and the permanent drainage features used to support the postmining land use. The operational drainage structures retained after reclamation to support the industrial postmining land use are presented in Table 13-15 of Exhibit 13. A table listing the operational ditches and culverts retained as part of the industrial land use as well as the calculations verifying the capacity of the ditches and culverts can be found in attachment 5 of this exhibit. Maps 21A - AB through 21E - AB, As-Built Topography and Drainage Structures Location Map, shows the reclamation channels and culverts as well as the operational ditches and culverts that have been retained to support the industrial postmining land use.

4.5.3.1 As-built Reclamation Channels

All reclamation channels are permanent diversions. None of the reclamation channels are for intermittent or perennial drainages. Therefore, according to R645-301-742.333 these drainages must be able to handle the 10-year 6-hour storm event. To the extent possible the reclamation channels have been built to approximate the natural undisturbed channels while still being structurally sound. However, natural channels often have very steep side slopes that cannot be constructed.

FlowMaster 1 (Haestad Methods, 1990) was utilized to verify the reclamation channels. FlowMaster incorporates Manning's and continuity equations and solves for open channel flow. The channel bottom width, side slopes, an assumed Manning's roughness coefficient, and peak discharge are inputs for each channel. Flow depth and velocity are model outputs. For reaches where flow velocity exceeded 5 fps, channel verification included verifying that the riprap size was adequate.

All calculations verifying the adequacy of the reclamation channels are presented in Appendix A of this attachment As-Built Hydrology Calculations.

Permanent drainage channels were established to carry storm runoff from the upgradient undisturbed areas through the reclaimed mine facilities area. These channels were constructed

to approximate the geometry of the existing natural drainage channels. The permanent channels were verified to ensure channel stability. The minimum cross sectional area of the channel was determined based on the peak design discharge, minimum slope found in the channel reach and roughest surface, i.e. assuming the largest riprap or mature vegetation. The erosion protection in the channel was designed based on the peak design discharge and the maximum slope. Maps 21A - AB through 21E - AB, As-Built Topography and Drainage Structures Location Map, shows the location of the permanent channels. To comply with UDOGM regulations, these drainage features were verified to pass peak flows from the 10-year, 6-hour storm event (R645-301-742.333). According to this regulation, permanent diversion channels that are not perennial or intermittent streams should be designed to handle the 10-year 6-hour storm event. All calculations supporting the design are presented in Appendix A, As-Built Hydrology Calculations.

Table 1, As-Built Reclamation Watershed Drainage Characteristics, gives details on the individual watersheds and the peak flow. Map 21G - AB, As-Built Postmining Reclamation Treatment and Watershed Map, show the location of the watersheds.

Table 2, As-Built Reclamation Curve Number Summary, gives the areas of undisturbed, reclaimed, and Pre-SMCRA disturbance not redisturbed by PMC, within the watersheds. The final curve number used to calculate the peak flow is an area weighted average of the three areas. A more detailed discussion of the curve numbers can be found in Appendix A, As-Built Hydrology Calculations.

Table 3, As-Built Reclamation Drainage Channels provides a summary of the reclamation channel configurations. The methodology used for verification of a riprap channel is discussed below.

Calculations verifying riprap sizing for the permanent postmining drainage channels are included in Appendix A, As-Built Reclamation Hydrology. The required thickness, and thus the volume, of the riprap for each channel is related to the average proposed riprap stone diameter. Channel riprap D_{50} requirements were determined using the nomographs presented in the Hydraulic Engineering Circular No. 1 by the U.S. Department of Transportation "Use of Riprap for Bank Protection" (Searcy, 1967).

It is essential for a riprap layer to be composed of rock having a gradation such that the voids between the larger particles are filled with smaller particles to reduce interstitial flows and provide overall stability to the system (Fiske, et al., 1994). Riprap channels were constructed with rock generated on-site. To achieve the necessary gradation on-site rock and boulders were broken using a hydraulic hammer mounted on an excavator. Once the riprap had been placed in the channel over the filter rocky soil was placed on the riprap to provide the smaller sizes of rock specified in the gradation and to provide soil for vegetation to grow in the channel. The construction of a riprap channel followed these general guidelines:

- The thickness of a riprap layer was at least 2 times the D_{50}
- Riprap layers were at least 6 inches in thickness

Filter fabric with a gravel protective layer or a gravel filter blanket was placed beneath any riprap course to stabilize the riprap layer and prevent erosion in the in-situ base material underlying the riprap. The filter blanket consists of granular material placed to a depth of 0.5 the riprap D_{50} or a minimum of six inches, which ever is greater.

4.5.3.2 Reclamation Culvert Design

Two new culverts were installed during reclamation. Four operational culverts were used in reclaimed area to convey runoff under roads or railroad tracks. All four of these culverts are in

the Pond 012A and 12B area and are shown on Map 21E - AB, As-Built Topography and Drainage Structures Location Map. WCRC-1 is an existing pre-SMCRA culvert under the old railroad grade. This area has not been disturbed by PMC and will not be reclaimed. However, the culvert can easily handle the design storm event. WCRC-2, WCRC-3 and WCRC-4 are needed due to the fact that the road remains after reclamation. WCRC-4 is a box culvert under the road which easily handles the design storm event. WCRC-5 is a box culvert under the railroad tracks, which remain after reclamation. WCRC-6 is an operational culvert that was used to convey runoff from a reclamation channel into Sediment Pond 001. Table 4 As-built Reclamation Drainage Culverts, provides details about the reclamation culverts. Calculations for the design of the reclamation culverts are presented in Appendix A of this attachment.

4.5.3.3 Reclamation Sedimentation Ponds

Alternate sediment control measures were used to minimize sediment loading to Willow Creek. Calculations in Appendix H-4 of exhibit 13, Alternate Sediment Control Calculations, demonstrate that the postmining sediment yield will be less than the premining sediment yield. Therefore, sedimentation ponds were no retained because alternate sediment control provides acceptable erosion control. To support the industrial postmining land use, sediment pond 001 was retained to treat stormwater runoff from the industrial site.

5.0 LITERATURE CITED

Abt, S.R., et al. 1988. Resistance to flow over riprap in steep channels. Water Resources Bulletin. 24 (6): 1193-1200.

Abt, S.R., Khattak, M.S., Nelson, J.D., Ruff, J.F., Shaikh, A, Wittler, R.J., Lee, D.W. and Hinkle, N.E. 1987. Development of Riprap Design Criteria by Riprap Testing in Flumes: Phase 1. U.S. Nuclear Regulatory Commission. Washington D.C.

Barfield, D.J., R.C. Warner, and C.T. Haan. 1983. Applied Hydrology and Sedimentology for Disturbed Areas. Oklahoma Technical Press. Stillwater, Oklahoma.

Earthfax Engineering, Inc. 1994. Castle Gate Coal Mine, Mining and Reclamation Plan. Vol. 6, Ch. 7. and Vol. 6, Ch.9.

Fiske, L.E., High, N.M., and Wittler, R.J. 1994. Application and Limitations of Commonly Used Design Methods for Erosion Mitigation Systems Using Riprap. Mining Environmental Management Conference. Reno, Nevada. October, 1994.

Haan, C.T., Barfield, B.J. and Hayes, J.C. 1994. Design Hydrology and Sedimentology for Small Catchments. Academic Press. San Diego, CA.

Haestad Methods, Inc. 1994. FlowMaster Version 6.0.

Searcy, J.K. 1967. Use of Riprap for Bank Protection. Hydraulic Engineering Circular No. 11. U.S.D.O.T. Washington D.C.

Simons, Li and Associates, Inc. 1983. Design of Sediment Control Measures for Small Areas in Surface Coal Mining. Prepared for Office of Surface Mining, U.S. Department of the Interior. Washington, D.C.

Simons, Li and Associates Inc. 1992. Surface Mining Water Diversion Design Manual. Prepared for Office of Surface Mining, U.S. Department of the Interior. Washington, D.C.

Soil Conservation Service (USDA-SCS). 1972. "Hydrology" Section 4, Soil Conservation Service National Engineering Handbook. U.S. Department of Agriculture. Washington, D.C.

Soil Conservation Service (USDA-SCS). 1986. Urban Hydrology for small watersheds, Technical release No. 55. Soil Conservation Service, U.S. Department of Agriculture, Washington, D.C.

State of Utah. R645 - Coal Mining Rules. 1991. Department of Natural Resources. Division of Oil, Gas, and Mining.

United States Department of Transportation (USDOT). Federal Highway Administration. 1989. Design of Riprap Revetment. Hydraulic Engineering Circular No. 11. U.S. Department of Commerce National Technical Information Service. Springfield, VA.

United States Department of Transportation (USDOT). Federal Highway Administration. 1965. Hydraulic Charts for the Selection of Highway Culverts. Hydraulic Engineering Circular No. 5. U.S. Government Printing Office, Washington D.C.

TABLES

TABLE 1
AS-BUILT RECLAMATION WATERSHED DRAINAGE CHARACTERISTICS
(Page 1 of 1)

Watershed	Area (acres)	Average Watershed Slope (%)	Weighted Curve Number	Watershed Lag Time (hours)	Time of Concentration (hours)	Peak Flow (cfs)
RWS-1	8.41	60.2	80	0.063	0.105	1.59
RWS-2	10.65	80.3	80	0.051	0.085	2.10
RWS-3	1.5	34.1	80	0.019	0.032	0.33
RWS-4	33.9	67.6	80	0.067	0.112	6.32
RWS-5	58.93	72.0	80	0.105	0.175	9.70

TABLE 2
AS-BUILT RECLAMATION CURVE NUMBER SUMMARY
 (page 1 of 1)

Watershed Area	Undisturbed		Reclaimed		Old Disturbance or Disturbed Areas ^(a)		Weighted CN
	Area (acres)	CN	Area (acres)	CN	Area (acres)	CN	
RWS-1	8.12	80	0.29	75	0	85	80
RWS-2	10.33	80	0.32	75	0	85	79
RWS-3	0.10	80	0.95	75	0.45	89	78
RWS-4	32.90	80	0.10	75	0.90	85	79
RWS-5	56.94	80	1.00	75	0.99	87	80

- (a) Old Disturbance Areas denotes area disturbed prior to the construction of the Willow Creek Mine but not redisturbed by PMC. These areas are revegetated to varying degrees. This may also include an area weighted average for other disturbed areas such as paved and unpaved roads.

TABLE 3
AS-BUILT RECLAMATION DRAINAGE CHANNEL SUMMARY
(Page 1 of 1)

Diversion Ditch (WCRD-)	Design Flow (cfs)	Measured As-built Conditions						Calculation Results	
		Bottom Width (ft) ^(a)	Side Slopes (ft)	Max. Bottom Slope (%)	Min. Bottom Slope (%)	Min. Channel Depth (ft)	Riprap D ₅₀ (in)	Max. Velocity (ft/s)	Max Flow Depth (ft)
1	1.59	3.5	3.75:1	35.3	4.8	1.0	6	3.68	0.16
2	2.10	3.0	3.42:1	27.8	10.2	1.17	6	4.03	0.18
3A	0.33	0	2:1	1.0	0.4	1.00	None	1.42	0.41
3B	0.33	2.0	1.7:1	37.1	15.4	1.33	6	2.59	0.07
4	6.32	3.0	2.6:1	27.2	7.9	1.33	6	5.94	0.36
5A	9.70	4.0	1.7:1	30.0	4.7	1.75	6	6.82	0.45
5B	10.92 +	4.0	1.9:1 1.5:1	1.5	1.1	0.88	None	3.66	0.65
5C	10.92 +	4.0	1.7:1	11.1	5.7	1.5	6	5.94	0.50
6A	2.71 *	2.0	2.2:1	2.5	1.2	1.5	None	3.39	0.46
6B @	2.71 *	5.0	1.2:1	74.1	14.7	1.1	12 Grouted	4.59	0.16

^(a) Minimum bottom width measured at minimum depth from top of channel.

+ Includes 9.7 cfs from RWS-5 and 1.22 cfs from CGRD-1 (see Willow Creek Preparation Plant As-Built Hydrology Calculations Exhibit 19 Appendix 3.4 Attachment 1 Channel CGRD-11)

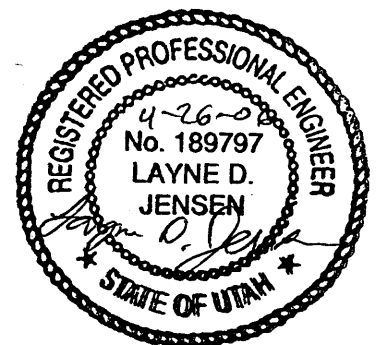
* From Willow Creek Preparation Plant As-Built Hydrology Calculations Exhibit 19 Appendix 3.4 Attachment 1 Channel CGRD-10A

@ This channel is a short section of the emergency spillway from Pond 012B. The spillway was built to handle a peak flow much larger than can be expected after reclamation.

TABLE 4
AS-BUILT RECLAMATION DRAINAGE CULVERTS

Culvert	Culvert Diameter (in)	Inlet Type	Pipe Slope (%)	HW/D	Inlet Control Capacity (cfs)	Design Discharge (cfs)	Outlet Velocity (ft/sec)	Required Riprap (in)	Measured Riprap (in)
WCRC-1	60"	Mitered	22	1.1	138	6.32	10.67	14	20
WCRC-2	48"	Projecting	N/A	1.125	78	6.32	N/A	Outlet into WCRC-4	
WCRC-3	24"	Projecting	N/A	1.75	19	10.92	N/A	Outlet into WCRC-4	
WCRC-4	10' x 5'	Box Culvert	-Approx. 1	>2	N/A	17.24	5.23	3	18
WCRC-5	10' x 5'	Box Culvert	-Approx. 1	1.6	480	19.95	5.53	4	12
WCRC-6	24'	Projecting	65	1.5	17	1.59	11.66	15	15

APPENDIX A
AS-BUILT HYDROLOGY CALCULATIONS



April 2006

As-Built Hydrology Calculations Willow Creek Mine

The purpose of these calculations is to demonstrate that the constructed reclamation channels can handle the peak flow generated from the required storm event. All reclamation channels must be able to handle the 10-year 6-hour storm event. All channels will be shown to be capable of safely handling the design event.

Methodology

- Curve Number techniques of the U.S. SCS (1972)
- Triangular Unit Hydrograph approach of the U.S. SCS (1972) as programed by Hawkins and Marshall (1979)
- Drainage areas, slopes and hydraulic lengths determined from as-built aerial topography. See Map 21G for watershed location.

Rainfall Depths

10-year 6-hour 1.4 inches

Reclamation Curve Numbers

The curve number for each watershed is determined by an area weighted average between undisturbed, disturbed and reclaimed areas. The same curve numbers for each vegetation type will be used as listed in Exhibit 13 Appendix H-1. Namely:

Pinyon/Juniper	CN = 80
Disturbed	CN = 85 to 89 depending on type of disturbance
Reclaimed	CN = 75 See Exhibit 13, Appendix H-1, pg. 2
Paved	CN = 98

Willow Creek Mine Reclamation Weighted Curve Numbers

Watershed Area (a)	Undisturbed		Reclaimed		Disturbed.		Weighted CN (b)
	Area (ac.)	CN	Area (ac.)	CN	Area (ac.)	CN #	
RWS-1	8.12	80	0.29	75	0	85	80
RWS-2	10.33	80	0.32	75	0	85	80
RWS-3	0.1	80	0.95	75	0.45	89	80
RWS-4	32.9	80	0.1	75	0.9	85	80
RWS-5	56.94	80	1	75	0.99	87	80

Notes

a See Map 21G for watershed locations

b Weighted CN = $(CN1)(A1) + (CN2)(A2) + (CN3)(A3) / (A1 + A2 + A3)$

Represents an area weighted average of paved and disturbed areas or areas that were previously disturbed but revegetated with time.

Willow Creek Mine
Summary of As-Built Watershed Data

Watershed Area	Drainage Area (ac)	Curve Number	S (in)	Y (%)	I (ft)	L (hr)	Time of Conc. (hr)	Peak Flow (cfs)
RWS-1	8.41	80	2.500	60.2	1710	0.063	0.105	1.59
RWS-2	10.65	80	2.500	80.3	1570	0.051	0.085	2.1
RWS-3	1.5	80	2.500	34.1	275	0.019	0.032	0.33
RWS-4	33.9	80	2.500	67.61	2000	0.067	0.112	6.32
RWS-5	58.93	80	2.500	72.04	3610	0.105	0.175	9.7

Notes

Watershed locations can be found on Map 21G.

$S = 1000/CN - 10$

$Y = \text{average watershed slope} = (\text{length of contour lines})(\text{contour interval})/(\text{watershed area})$

$I = \text{hydraulic length}$

$L = \text{watershed lag} = (1/0.8(S+1)^{0.7}) / (1900(Y)^{0.5})$

Time of Concentration + 1.67L

Peak Flow is based on a 10-year 6-hour storm event.

Triangular Hydrograph Calculations using

SCSHYDRO Program

Watershed I.D.:

RWS-1 10-YEAR 6-HOUR STORM EVENT

INPUT SUMMARY

STORM :	WATERSHED :
Dist.= SCS Type 'b'	Area = 8.41 acres
Depth = 1.40 inches	CN = 80.00
Duration = 6.0 hrs	Time conc.= 0.11 hrs

OUTPUT SUMMARY

Runoff depth:	0.238 inches
Initial abstr:	0.500 inches
Peak flow:	1.59 cfs (0.188 iph)
at time:	2.534 hrs

Triangular Hydrograph Calculations using

SCSHYDRO Program

Watershed I.D.:

RWS-2 10-YEAR 6-HOUR STORM EVENT

INPUT SUMMARY

STORM :	WATERSHED :
Dist.= SCS Type 'b'	Area = 10.65 acres
Depth = 1.40 inches	CN = 80.00
Duration = 6.0 hrs	Time conc.= 0.09 hrs

OUTPUT SUMMARY

Runoff depth: 0.238 inches
Initial abstr: 0.500 inches
Peak flow: 2.10 cfs (0.195 iph)
at time: 2.516 hrs

Triangular Hydrograph Calculations using

SCSHYDRO Program

Watershed I.D.:

RWS-3 10-YEAR 6-HOUR STORM EVENT

INPUT SUMMARY

STORM :	WATERSHED :
Dist.= SCS Type 'b'	Area = 1.50 acres
Depth = 1.40 inches	CN = 80.00
Duration = 6.0 hrs	Time conc.= 0.03 hrs

OUTPUT SUMMARY

Runoff depth:	0.238 inches
Initial abstr:	0.500 inches
Peak flow:	0.33 cfs (0.219 iph)
at time:	2.505 hrs

Triangular Hydrograph Calculations using

SCSHYDRO Program

Watershed I.D.:

RWS-4 10-YEAR 6-HOUR STORM EVENT

INPUT SUMMARY

STORM :	WATERSHED :
Dist. = SCS Type 'b'	Area = 33.90 acres
Depth = 1.40 inches	CN = 80.00
Duration = 6.0 hrs	Time conc. = 0.11 hrs

OUTPUT SUMMARY

Runoff depth:	0.238 inches
Initial abstr:	0.500 inches
Peak flow:	6.32 cfs (0.185 iph)
at time:	2.539 hrs

Triangular Hydrograph Calculations using

SCSHYDRO Program

Watershed I.D.:

RWS-5 10-YEAR 6-HOUR STORM EVENT

INPUT SUMMARY

STORM :	WATERSHED :
Dist.= SCS Type 'b'	Area = 58.93 acres
Depth = 1.40 inches	CN = 80.00
Duration = 6.0 hrs	Time conc.= 0.18 hrs

OUTPUT SUMMARY

Runoff depth:	0.238 inches
Initial abstr:	0.500 inches
Peak flow:	9.70 cfs (0.163 iph)
at time:	2.567 hrs

Channel Verification

Assumptions

1. All channels are verified for the 10-year 6-hour storm event,
2. When determining the adequacy of the riprap the method presented by Searcy, (1967) will be used,
3. Riprap thickness is twice the D_{50} ,
4. A Mannings n for riprap channels will be determined using the method presented by Abt, S.R., et. al. (1987)

$$n = 0.0456(D_{50} \times \text{Slope})^{0.159}$$

Where: D_{50} = median riprap size (inches)
Slope = (ft\ft)

5. A Mannings n for rocky ground will be assumed to be 0.035. The Mannings n for bare ground will be assumed to be 0.030
6. The channels are verified by assessing the erosional stability at the maximum slope and the capacity of the channel at the minimum slope.

The channels were measured in the fall of 2004. The channels were measured at the location of the minimum flow area. Thus, the channels typically have a greater capacity than indicated in this calculation. Calculation sheets can be found on pages 11 to 30 with a summary on page 10.

Channel cross-sections for each of the channels can be found on pages 31 through 40. Channel profiles can be found on Map 22B.

WILLOW CREEK MINE

AS-BUILT RECLAMATION DITCH DESIGN SUMMARY

Diversion Ditch (WCRD-)	Design Flow (cfs)	Measured As-built Conditions						Calculation Results	
		Bottom Width (ft) ^(a)	Side Slopes (ft)	Max. Bottom Slope (%)	Min. Bottom Slope (%)	Min. Channel Depth (ft)	Riprap D ₅₀ (in)	Max. Velocity (ft/s)	Max Flow Depth (ft)
1	1.59	3.5	3.75:1	35.3	4.8	1.0	6	3.68	0.16
2	2.10	3.0	3.42:1	27.8	10.2	1.17	6	4.03	0.18
3A	0.33	0	2:1	1.0	0.4	1.00	None	1.42	0.41
3B	0.33	2.0	1.7:1	37.1	15.4	1.33	6	2.59	0.07
4	6.32	3.0	2.6:1	27.2	7.9	1.33	6	5.94	0.36
5A	9.70	4.0	1.7:1	30.0	4.7	1.75	6	6.82	0.45
5B	10.92 +	4.0	1.9:1 1.5:1	1.5	1.1	0.88	None	3.66	0.65
5C	10.92 +	4.0	1.7:1	11.1	5.7	1.5	6	5.94	0.50
6A	2.71 *	2.0	2.2:1	2.5	1.2	1.5	None	3.39	0.46
6B @	2.71 *	5.0	1.2:1	74.1	14.7	1.1	12 Grouted	4.59	0.16

^(a) Minimum bottom width measured at minimum depth from top of channel.

+ Includes 9.7 cfs from RWS-5 and 1.22 cfs from CGRD-1 (see Willow Creek Preparation Plant As-Built Hydrology Calculations Exhibit 19 Appendix 3.4 Attachment 1 Channel CGRD-11)

* From Willow Creek Preparation Plant As-Built Hydrology Calculations Exhibit 19 Appendix 3.4 Attachment 1 Channel CGRD-10A

@ This channel is a short section of the emergency spillway from Pond 012B. The spillway was built to handle a peak flow much larger than can be expected after reclamation.

WCRD-1 MINIMUM SLOPE Worksheet for Trapezoidal Channel

11

Project Description	
Worksheet	WILLOW CREEK MINI
Flow Element	Trapezoidal Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data	
Mannings Coeff	0.037
Slope	048000 ft/ft
Left Side Slope	3.75 H : V
Right Side Slope	3.75 H : V
Bottom Width	3.50 ft
Discharge	1.59 cfs

$R_{50} = 6''$ slope = 4.8% $n = 0.0456 (R_{50} \text{ (in)} \times \text{Slope} (\%))^{\frac{0.159}{1}}$
 $n = 0.0456 (6 \times 0.048)^{\frac{0.159}{1}} = 0.037$

Results	
Depth	0.16 ft
Flow Area	0.7 ft ²
Wetted Perim	4.77 ft
Top Width	4.73 ft
Critical Depth	0.17 ft
Critical Slope	0.038605 ft/ft
Velocity	2.36 ft/s
Velocity Head	0.09 ft
Specific Energ	0.25 ft
Froude Numb	1.11
Flow Type	supercritical

$\leq 1.0' \therefore \text{OK}$
 Freeboard = 0.84'

12

WCRD-1 MAXIMUM SLOPE

Worksheet for Trapezoidal Channel

Project Description	
Worksheet	WILLOW CREEK MINI
Flow Element	Trapezoidal Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data

Mannings Coeff	0.051	<i>D₅₀ = 6" slope = 35.7%</i>
Slope	353000 ft/ft	
Left Side Slope	3.75 H : V	
Right Side Slope	3.75 H : V	
Bottom Width	3.50 ft	
Discharge	1.59 cfs	

Results

Depth	0.11 ft	
Flow Area	0.4 ft ²	
Wetted Perim	4.36 ft	
Top Width	4.33 ft	
Critical Depth	0.17 ft	
Critical Slope	0.073308 ft/ft	
Velocity	3.68 ft/s	<i>< 8 f/s ∴ OK</i>
Velocity Head	0.21 ft	
Specific Energ	0.32 ft	
Froude Numb	2.05	
Flow Type	supercritical	

13

WCRD-2 MINIMUM SLOPE

Worksheet for Trapezoidal Channel

Project Description	
Worksheet	WILLOW CREEK MINI
Flow Element	Trapezoidal Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data

Mannings Coeff	0.042	<i>$0.50 = 6''$</i>	<i>$5.12\% = 10.2\%$</i>
Slope	102000	ft/ft	
Left Side Slope	3.42	H : V	
Right Side Slope	3.42	H : V	
Bottom Width	3.00	ft	
Discharge	2.10	cfs	

Results

Depth	0.18	ft	<i>$< 1.17' \therefore \text{Ok}$</i>
Flow Area	0.7	ft ²	
Wetted Perim	4.29	ft	<i>free board = 0.99'</i>
Top Width	4.24	ft	
Critical Depth	0.23	ft	
Critical Slope	0.046177	ft/ft	
Velocity	3.21	ft/s	
Velocity Head	0.16	ft	
Specific Energ	0.34	ft	
Froude Numb	1.44		
Flow Type	supercritical		

19

WCRD-2 MAXIMUM SLOPE

Worksheet for Trapezoidal Channel

Project Description	
Worksheet	WILLOW CREEK MINI
Flow Element	Trapezoidal Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data	
Mannings Coeff	0.050
Slope	278000 ft/ft
Left Side Slope	3.42 H : V
Right Side Slope	3.42 H : V
Bottom Width	3.00 ft
Discharge	2.10 cfs

D50 = 6" Slope = 27.8%

Results	
Depth	0.15 ft
Flow Area	0.5 ft ²
Wetted Perim	4.06 ft
Top Width	4.02 ft
Critical Depth	0.23 ft
Critical Slope	0.063533 ft/ft
Velocity	4.03 ft/s
Velocity Head	0.25 ft
Specific Energ	0.40 ft
Froude Numb	1.97
Flow Type	supercritical

< 8 f/s ∴ OK

15

WCRD-3A MINIMUM SLOPE
Worksheet for Trapezoidal Channel

Project Description	
Worksheet	WILLOW CREEK MINI
Flow Element	Trapezoidal Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data	
Mannings Coeff	0.030 <i>Bare earth</i>
Slope	004000 ft/ft
Left Side Slope	2.00 H : V
Right Side Slope	2.00 H : V
Bottom Width	0.00 ft
Discharge	0.33 cfs

Results	
Depth	0.41 ft <i>< 1.0' freeboard = 0.59'</i>
Flow Area	0.3 ft ²
Wetted Perim	1.81 ft
Top Width	1.62 ft
Critical Depth	0.28 ft
Critical Slope	0.029341 ft/ft
Velocity	1.00 ft/s
Velocity Head	0.02 ft
Specific Energ	0.42 ft
Froude Numb	0.39
Flow Type	Subcritical

WCRD-3A MAXIMUM SLOPE

Worksheet for Trapezoidal Channel

Project Description	
Worksheet	WILLOW CREEK MINI
Flow Element	Trapezoidal Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data	
Mannings Coeff	0.030 <i>bare earth</i>
Slope	010000 ft/ft
Left Side Slope	2.00 H : V
Right Side Slope	2.00 H : V
Bottom Width	0.00 ft
Discharge	0.33 cfs

Results	
Depth	0.34 ft
Flow Area	0.2 ft ²
Wetted Perim	1.53 ft
Top Width	1.37 ft
Critical Depth	0.28 ft
Critical Slope	0.029341 ft/ft
Velocity	<u>1.42 ft/s</u> <i>< 5.0 for ∴ OK</i>
Velocity Head	0.03 ft
Specific Energ	0.37 ft
Froude Numb	0.60
Flow Type	Subcritical

WCRD-3B MINIMUM SLOPE

Worksheet for Trapezoidal Channel

Project Description	
Worksheet	WILLOW CREEK MINI
Flow Element	Trapezoidal Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data	
Mannings Coeff	0.045 <i>D₅₀ = 6" slope = 15.4 %</i>
Slope	154000 ft/ft
Left Side Slope	1.70 H : V
Right Side Slope	1.70 H : V
Bottom Width	2.00 ft
Discharge	0.33 cfs

Results	
Depth	0.07 ft <i>< 1.33' freeboard = 1.26'</i>
Flow Area	0.2 ft ²
Wetted Perim	2.29 ft
Top Width	2.25 ft
Critical Depth	0.09 ft
Critical Slope	0.068832 ft/ft
Velocity	2.14 ft/s
Velocity Head	0.07 ft
Specific Energ	0.14 ft
Froude Numb	1.44
Flow Type	supercritical

12

WCRD-3B MAXIMUM SLOPE
Worksheet for Trapezoidal Channel

Project Description	
Worksheet	WILLOW CREEK MINI
Flow Element	Trapezoidal Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data	
Mannings Coeff	0.052 <i>0.50 = 6" slope = 37.1%</i>
Slope	371000 ft/ft
Left Side Slope	1.70 H : V
Right Side Slope	1.70 H : V
Bottom Width	2.00 ft
Discharge	0.33 cfs

Results	
Depth	0.06 ft
Flow Area	0.1 ft ²
Wetted Perim	2.24 ft
Top Width	2.21 ft
Critical Depth	0.09 ft
Critical Slope	0.091206 ft/ft
Velocity	2.59 ft/s <i>< 7.3 fps ∴ ok</i>
Velocity Head	0.10 ft
Specific Energ	0.16 ft
Froude Numb	1.90
Flow Type	supercritical

WCRD-4 MINIMUM SLOPE

Worksheet for Trapezoidal Channel

Project Description	
Worksheet	WILLOW CREEK MINI
Flow Element	Trapezoidal Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data	
Mannings Coeffic	0.041
Slope	079000 ft/ft
Left Side Slope	2.60 H : V
Right Side Slope	2.60 H : V
Bottom Width	3.00 ft
Discharge	6.32 cfs

Results	
Depth	0.36 ft
Flow Area	1.4 ft ²
Wetted Perim	5.01 ft
Top Width	4.88 ft
Critical Depth	0.45 ft
Critical Slope	0.035282 ft/ft
Velocity	4.45 ft/s
Velocity Head	0.31 ft
Specific Energ	0.67 ft
Froude Numb	1.45
Flow Type	Supercritical

$D_{50} = 6"$ $Slope = 7.9\%$

$< 1.33'$ $Freeboard = 0.97'$

20

WCRD-4 MAXIMUM SLOPE
Worksheet for Trapezoidal Channel

Project Description	
Worksheet	WILLOW CREEK MINI
Flow Element	Trapezoidal Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data	
Mannings Coeff	0.049 $D_{50} = 6''$ Slope = 27.2%
Slope	272000 ft/ft
Left Side Slope	2.60 H : V
Right Side Slope	2.60 H : V
Bottom Width	3.00 ft
Discharge	6.32 cfs

Results	
Depth	0.28 ft
Flow Area	1.1 ft ²
Wetted Perim	4.59 ft
Top Width	4.48 ft
Critical Depth	0.45 ft
Critical Slope	0.052281 ft/ft
Velocity	5.94 ft/s < 7.3 fps \therefore ok
Velocity Head	0.55 ft
Specific Energ	0.83 ft
Froude Numb	2.15
Flow Type	Supercritical

WCRD-5A MINIMUM SLOPE

Worksheet for Trapezoidal Channel

Project Description	
Worksheet	WILLOW CREEK MINI
Flow Element	Trapezoidal Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data

Mannings Coeff	0.037	$n_{50} = 6''$	$slope = 4.7\%$
Slope	0.47000	ft/ft	
Left Side Slope	1.70	H : V	
Right Side Slope	1.70	H : V	
Bottom Width	4.00	ft	
Discharge	9.70	cfs	

Results

Depth	0.45 ft	$< 1.75 ft$	$Freeboard = 1.3'$
Flow Area	2.2	ft ²	
Wetted Perim	5.78	ft	
Top Width	5.54	ft	
Critical Depth	0.52	ft	
Critical Slope	0.027890	ft/ft	
Velocity	4.51	ft/s	
Velocity Head	0.32	ft	
Specific Energ	0.77	ft	
Froude Numb	1.27		
Flow Type	supercritical		

WCRD-5A MAXIMUM SLOPE
Worksheet for Trapezoidal Channel

22

Project Description	
Worksheet	WILLOW CREEK MINI
Flow Element	Trapezoidal Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data

Mannings Coeff	0.050	$D_{50} = 6" \text{ slope} = 30.0\%$
Slope	300000	ft/ft
Left Side Slope	1.70	H : V
Right Side Slope	1.70	H : V
Bottom Width	4.00	ft
Discharge	9.70	cfs

Results

Depth	0.31	ft
Flow Area	1.4	ft ²
Wetted Perim	5.24	ft
Top Width	5.07	ft
Critical Depth	0.52	ft
Critical Slope	0.050931	ft/ft
Velocity	6.82	ft/s $< 7.3 \text{ fps} \therefore \text{ok}$
Velocity Head	0.72	ft
Specific Energ	1.04	ft
Froude Numb	2.27	
Flow Type	supercritical	

WCRD-5B MINIMUM SLOPE
Worksheet for Trapezoidal Channel

23

Project Description	
Worksheet	WILLOW CREEK MINI
Flow Element	Trapezoidal Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data	
Mannings Coeffic	0.030 bare earth
Slope	011000 ft/ft
Left Side Slope	1.90 H : V
Right Side Slope	1.50 H : V
Bottom Width	4.00 ft
Discharge	10.92 cfs

Results	
Depth	0.65 ft < 0.88 freeboard = 0.23'
Flow Area	3.3 ft ²
Wetted Perim	6.57 ft
Top Width	6.21 ft
Critical Depth	0.56 ft
Critical Slope	0.018020 ft/ft
Velocity	3.29 ft/s
Velocity Head	0.17 ft
Specific Energ	0.82 ft
Froude Numb	0.79
Flow Type	Subcritical

24

WCRD-5B MAXIMUM SLOPE
Worksheet for Trapezoidal Channel

Project Description	
Worksheet	WILLOW CREEK MINI
Flow Element	Trapezoidal Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data	
Mannings Coeff	0.030 bare earth
Slope	015000 ft/ft
Left Side Slope	1.90 H : V
Right Side Slope	1.50 H : V
Bottom Width	4.00 ft
Discharge	10.92 cfs

Results	
Depth	0.59 ft < 0.88' freeboard = 0.29
Flow Area	3.0 ft ²
Wetted Perim	6.35 ft
Top Width	6.02 ft
Critical Depth	0.56 ft
Critical Slope	0.018020 ft/ft
Velocity	3.66 ft/s < 5.0 fps ∴ OK
Velocity Head	0.21 ft
Specific Energ	0.80 ft
Froude Numb	0.92
Flow Type	Subcritical

WCRD-5C MINIMUM SLOPE

Worksheet for Trapezoidal Channel

Project Description	
Worksheet	Trapezoidal Channel
Flow Element	Trapezoidal Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data	
Mannings Coeff	0.039 <i>0.50 = 6"</i>
Slope	0.057000 ft/ft
Left Side Slope	1.70 V : H
Right Side Slope	1.70 V : H
Bottom Width	4.00 ft
Discharge	10.92 cfs

Results	
Depth	<u>0.50 ft</u> <i>< 1.5' freeboard = 1.0'</i>
Flow Area	2.1 ft ²
Wetted Perim	5.15 ft
Top Width	4.58 ft
Critical Depth	0.60 ft
Critical Slope	0.031550 ft/ft
Velocity	5.12 ft/s
Velocity Head	0.41 ft
Specific Energ	0.90 ft
Froude Numb	1.32
Flow Type	Supercritical

WCRD-5C MAXIMUM SLOPE

Worksheet for Trapezoidal Channel

Project Description	
Worksheet	Trapezoidal Channel
Flow Element	Trapezoidal Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data	
Mannings Coeff	0.043 <i>$D_{50} = 6''$ $Slope = 11.1\%$</i>
Slope	111000 ft/ft
Left Side Slope	1.70 V : H
Right Side Slope	1.70 V : H
Bottom Width	4.00 ft
Discharge	10.92 cfs

Results	
Depth	0.43 ft
Flow Area	1.8 ft ²
Wetted Perim	5.00 ft
Top Width	4.51 ft
Critical Depth	0.60 ft
Critical Slope	0.038900 ft/ft
Velocity	5.94 ft/s <i>$< 7.3 \text{ fps} \therefore \text{ok}$</i>
Velocity Head	0.55 ft
Specific Energy	0.98 ft
Froude Number	1.64
Flow Type	Supercritical

WCRD-6A MINIMUM SLOPE

Worksheet for Trapezoidal Channel

Project Description	
Worksheet	Trapezoidal Channel
Flow Element	Trapezoidal Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data	
Mannings Coeff	0.030 <i>bare earth</i>
Slope	012000 ft/ft
Left Side Slope	2.20 V : H
Right Side Slope	2.20 V : H
Bottom Width	2.00 ft
Discharge	2.71 cfs

Results	
Depth	0.46 ft <i>< 1.5' freeboard = 1.04'</i>
Flow Area	1.0 ft ²
Wetted Perim	3.02 ft
Top Width	2.42 ft
Critical Depth	0.37 ft
Critical Slope	0.023958 ft/ft
Velocity	2.64 ft/s
Velocity Head	0.11 ft
Specific Energ	0.57 ft
Froude Numb	0.72
Flow Type	Subcritical

WCRD-6A MAXIMUM SLOPE

Worksheet for Trapezoidal Channel

Project Description	
Worksheet	Trapezoidal Channel
Flow Element	Trapezoidal Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data	
Mannings Coefficient	0.030 bare earth
Slope	0.25000 ft/ft
Left Side Slope	2.20 V : H
Right Side Slope	2.20 V : H
Bottom Width	2.00 ft
Discharge	2.71 cfs

Results	
Depth	0.37 ft
Flow Area	0.8 ft ²
Wetted Perimeter	2.81 ft
Top Width	2.34 ft
Critical Depth	0.37 ft
Critical Slope	0.023958 ft/ft
Velocity	<u>3.39 ft/s</u> < 5.0 fps : OK
Velocity Head	0.18 ft
Specific Energy	0.55 ft
Froude Number	1.02
Flow Type	supercritical

29

WCRD-6B MINIMUM SLOPE

Worksheet for Trapezoidal Channel

Project Description	
Worksheet	Willow Creek Mii
Flow Element	Trapezoidal Cha
Method	Manning's Formi
Solve For	Channel Depth

Input Data	
Mannings Coeffic	0.050 $n_{sp} = 12''$
Slope	147000 ft/ft
Left Side Slope	1.20 V : H
Right Side Slope	1.20 V : H
Bottom Width	5.00 ft
Discharge	2.71 cfs

Results	
Depth	0.16 ft $< 1.1 \text{ ft}$ OK freeboard = 0.94'
Flow Area	0.8 ft ²
Wetted Perim	5.42 ft
Top Width	5.27 ft
Critical Depth	0.21 ft
Critical Slope	0.065066 ft/ft
Velocity	3.27 ft/s
Velocity Head	0.17 ft
Specific Energ	0.33 ft
Froude Numb	1.45
Flow Type	supercritical

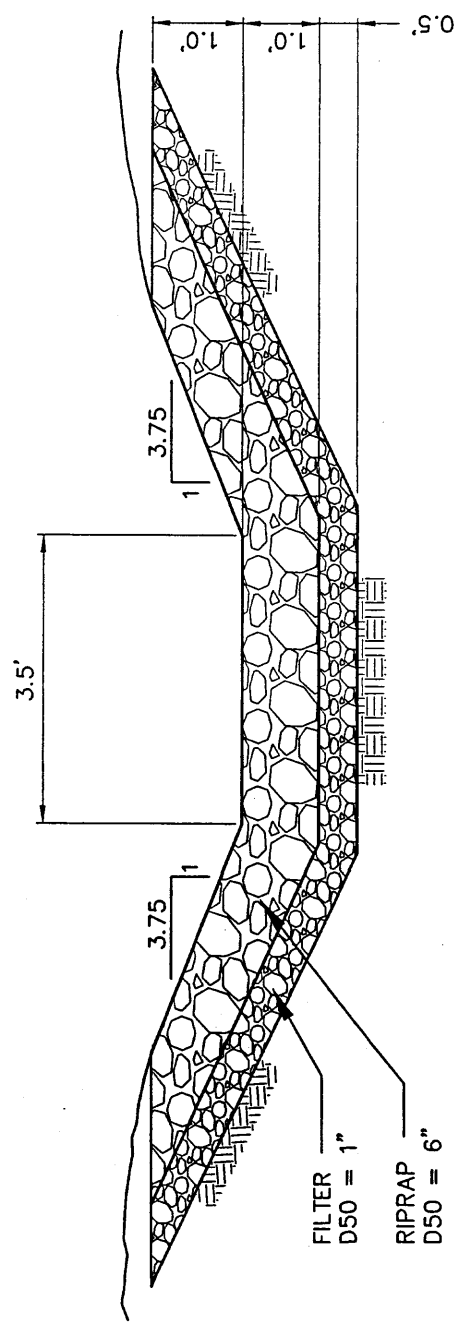
30

WCRD-6B MAXIMUM SLOPE Worksheet for Trapezoidal Channel

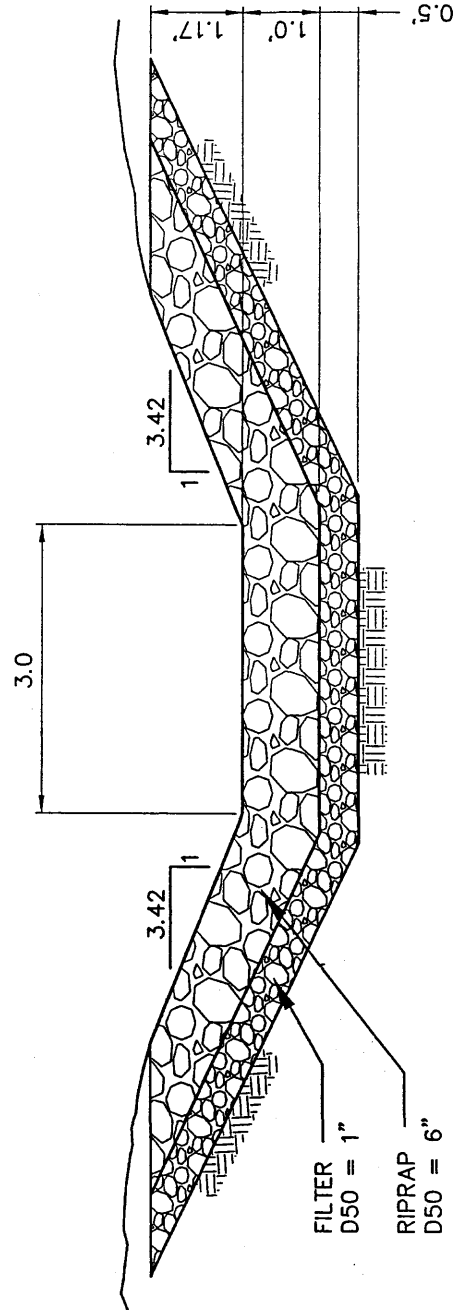
Project Description	
Worksheet	Willow Creek Mi
Flow Element	Trapezoidal Cha
Method	Manning's Form
Solve For	Channel Depth

Input Data	
Mannings Coeff	<u>0.065</u> $D_{50} = 12''$
Slope	741000 ft/ft
Left Side Slope	1.20 V : H
Right Side Slope	1.20 V : H
Bottom Width	5.00 ft
Discharge	2.71 cfs

Results	
Depth	0.12 ft
Flow Area	0.6 ft ²
Wetted Perim	5.30 ft
Top Width	5.19 ft
Critical Depth	0.21 ft
Critical Slope	0.108710 ft/ft
Velocity	<u>4.59 ft/s</u> $\ll 8.4 \therefore \text{OK}$
Velocity Head	0.33 ft
Specific Energ	0.44 ft
Froude Numb	2.40
Flow Type	supercritical



WCRD-1 CHANNEL CROSS-SECTION



NO SCALE

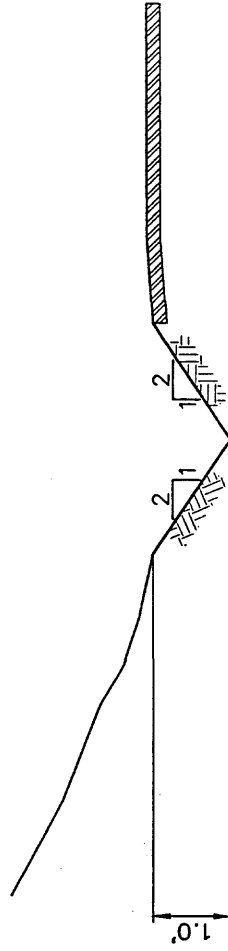
WCRD-2 CHANNEL CROSS-SECTION

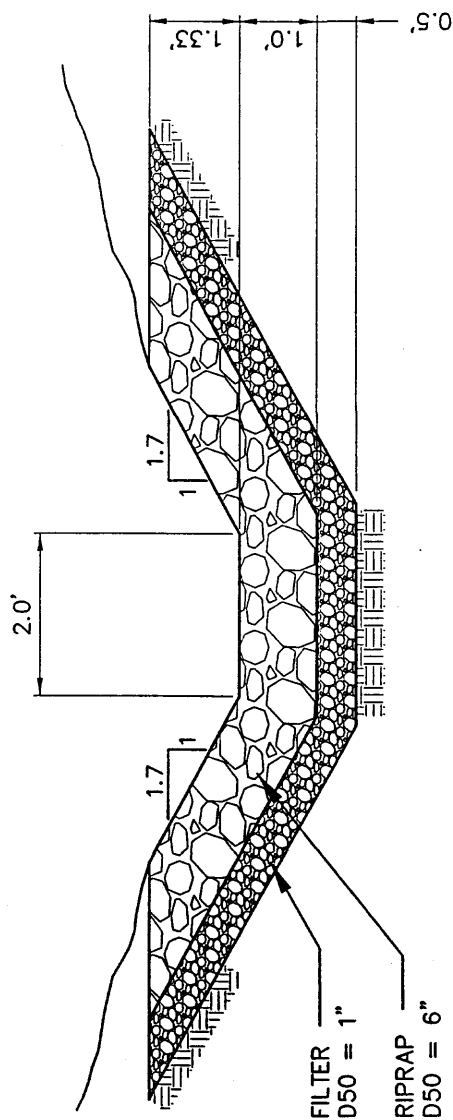


WCRD-3A CHANNEL CROSS-SECTION



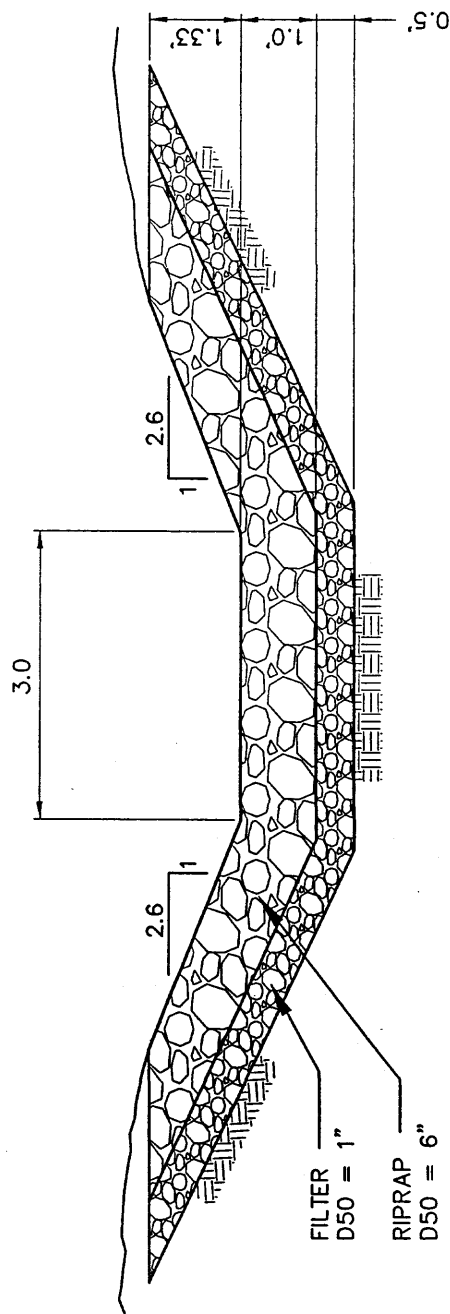
NO SCALE





NO SCALE

WCRD-3B CHANNEL CROSS-SECTION



NO SCALE

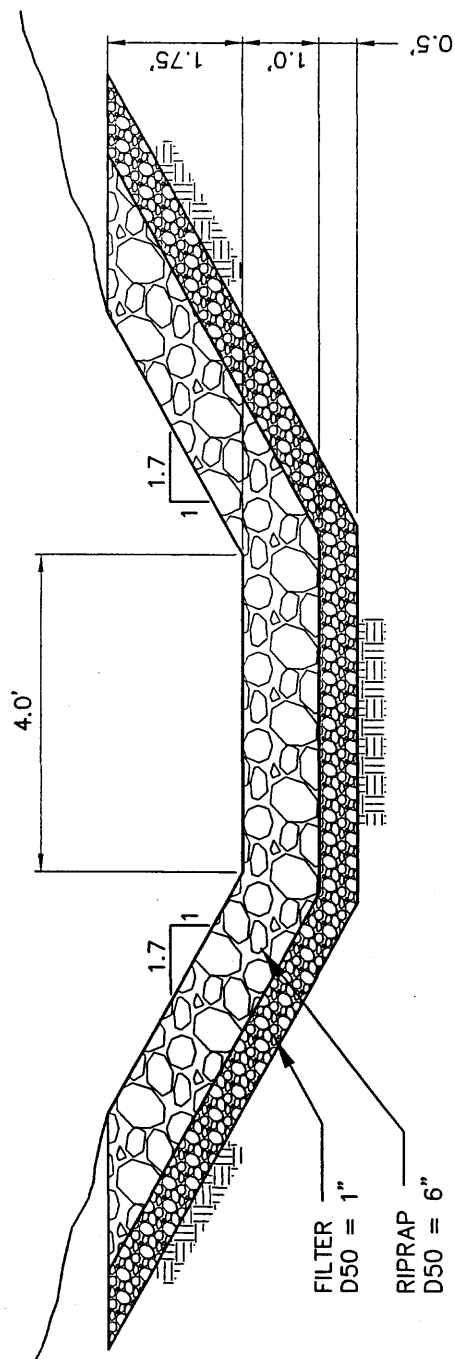
WCRD-4 CHANNEL CROSS-SECTION



WCRD-5A CHANNEL CROSS-SECTION

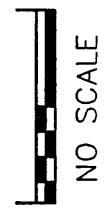
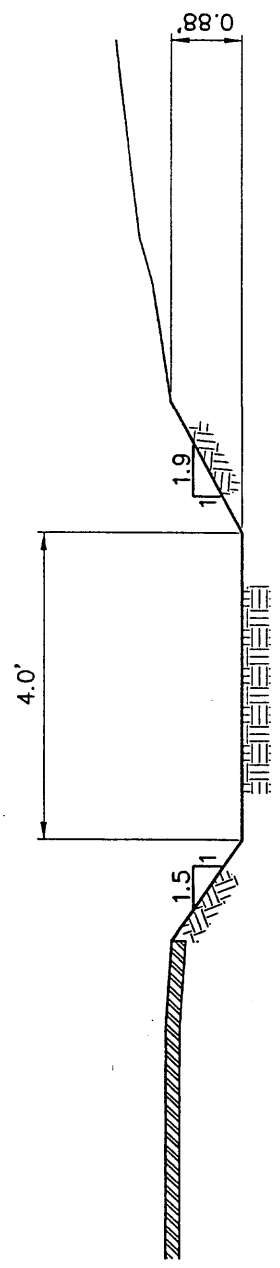


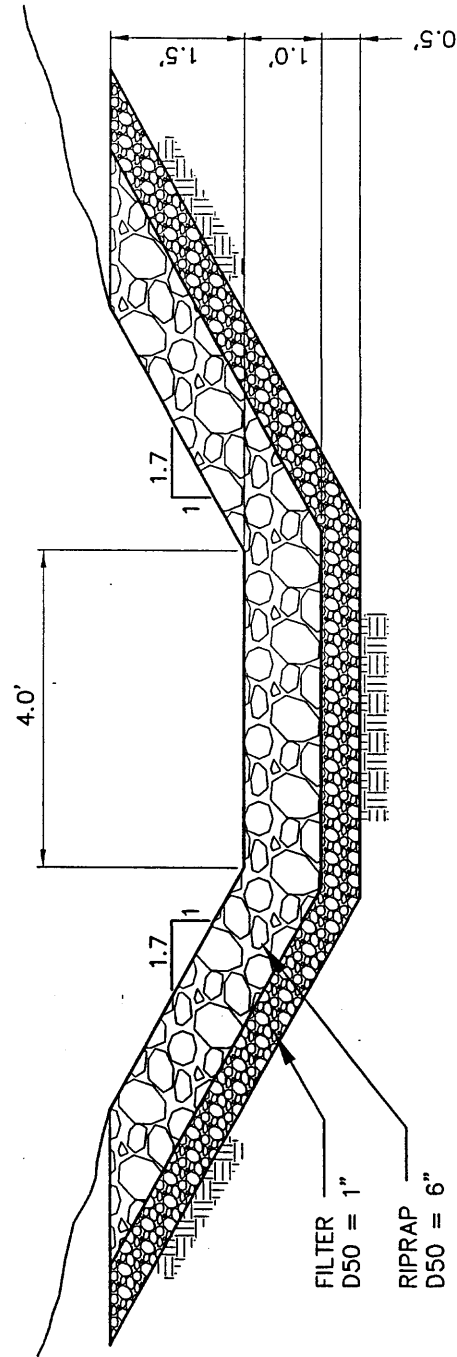
NO SCALE





WCRD-5B CHANNEL CROSS-SECTION



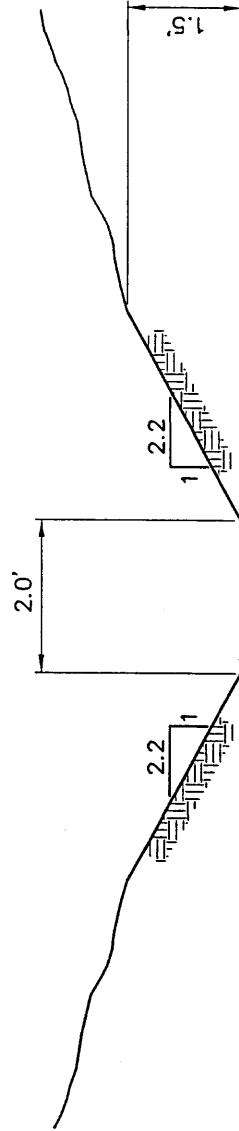


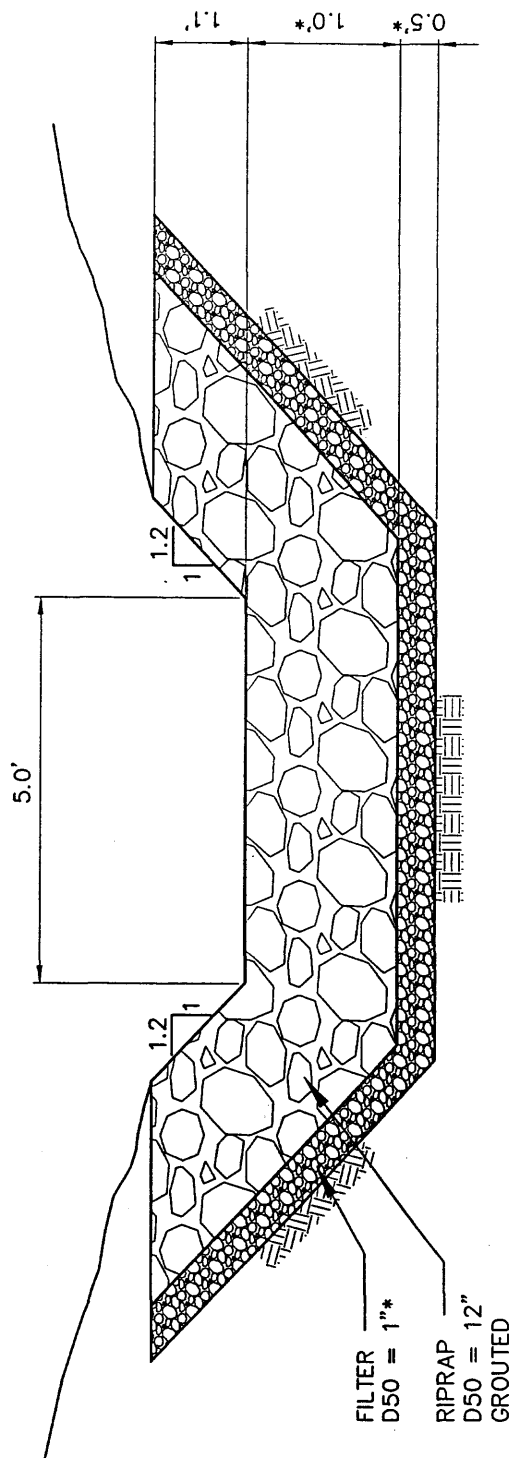
NO SCALE

WCRD-5C CHANNEL CROSS-SECTION



WCRD-6A CHANNEL CROSS-SECTION





* THIS IS A SHORT SECTION OF EMERGENCY SPILLWAY THAT IS BEING USED TO DROP RUNOFF TO A CUVERT. DUE TO THE AGE OF THE GROUTED RIPRAP CHANNEL THE RIPRAP THICKNESS AND ANY DETAILS REGARDING THE FILTER ARE UNKNOWN. THE VALUES GIVEN ARE TYPICAL OF OTHER CHANNELS NOT ACTUALLY MEASURED.



NO SCALE

WCRD-6B CHANNEL CROSS-SECTION

Culvert Verification

Four operational culverts, on the Preparation Plant side, were left in place as part of reclamation due to the need to convey runoff below the road and railroad tracks. A 24-inch culvert (WCRC-3) was added to convey runoff in WCRD-5C into an existing box culvert (WCRC-4) that conveys runoff under the road. The one remaining culvert in the reclaimed area of the mine is WCRC-6. This culvert was left to convey runoff from a reclamation channel into the remaining sediment pond. These calculations will verify that these culverts can handle the design flow.

Assumptions

1. Culverts are verified for the 10-year 6-hour storm event,
2. When determining the adequacy of the outlet riprap the method presented by Searcy, (1967) will be used,
3. Riprap thickness is twice the D_{50} ,
4. A Mannings n for culverts is 0.024

The following table summarizes the measured and calculated results.

**WILLOW CREEK MINE
AS-BUILT RECLAMATION CULVERT DESIGN SUMMARY**

Culvert	Culvert Diameter (in)	Inlet Type	Pipe Slope (%)	HW/D	Inlet Control Capacity (cfs)	Design Discharge (cfs)	Outlet Velocity (ft/sec)	Required Riprap (in)	Measured Riprap (in)
WCRC-1	60"	Mitered	22	1.1	138	6.32	10.67	14	20
WCRC-2	48"	Projecting	N/A	1.125	78	6.32	N/A	Outlet into WCRC-4	
WCRC-3	24"	Projecting	N/A	1.75	19	10.92	N/A	Outlet into WCRC-4	
WCRC-4	10' x 5'	Box Culvert	-Approx. 1	>2	N/A	17.24	5.23	3	18
WCRC-5	10' x 5'	Box Culvert	-Approx. 1	1.6	480	19.95	5.53	4	12
WCRC-6	24'	Projecting	65	1.5	17	1.59	11.66	15	15

42

WCRC-1
Worksheet for Circular Channel

Project Description

Worksheet	Willow Creek As-t
Flow Element	Circular Channel
Method	Manning's Formul
Solve For	Channel Depth

Input Data

Mannings Coeff	0.024	<i>CMP</i>
Slope	220000	ft/ft
Diameter	60	in
Discharge	6.32	cfs

Results

Depth	0.35	ft
Flow Area	0.6	ft²
Wetted Perime	2.66	ft
Top Width	2.54	ft
Critical Depth	0.69	ft
Percent Full	6.9	%
Critical Slope	0.012285	ft/ft
Velocity	10.67	ft/s
Velocity Head	1.77	ft
Specific Energ	2.11	ft
Froude Numbe	3.89	
Maximum Disc	711.75	cfs
Discharge Full	661.66	cfs
Slope Full	0.000020	ft/ft
Flow Type	supercritical	

D₅₀ = 14"

WCRC-4

Worksheet for Rectangular Channel

Project Description	
Worksheet	WILLOW CREEK
Flow Element	Rectangular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data

Mannings Coefficient	0.013	Concrete box culvert
Slope	0.0000	ft/ft
Bottom Width	10.00	ft
Discharge	17.24	cfs

Results

Depth	0.33	ft
Flow Area	3.3	ft ²
Wetted Perimeter	10.66	ft
Top Width	10.00	ft
Critical Depth	0.45	ft
Critical Slope	0.003601	ft/ft
Velocity	5.23	ft/s
Velocity Head	0.42	ft
Specific Energy	0.75	ft
Froude Number	1.61	
Flow Type	supercritical	

$Q_{50} = 3''$

WCRC-5

Worksheet for Rectangular Channel

Project Description	
Worksheet	WILLOW CREEK
Flow Element	Rectangular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data

Mannings Coeff	0.013	culvert Box Culvert
Slope	0.0000	ft/ft
Bottom Width	10.00	ft
Discharge	19.95	cfs

Results

Depth	0.36	ft
Flow Area	3.6	ft ²
Wetted Perimeter	10.72	ft
Top Width	10.00	ft
Critical Depth	0.50	ft
Critical Slope	0.003526	ft/ft
Velocity	5.53	ft/s
Velocity Head	0.48	ft
Specific Energy	0.84	ft
Froude Number	1.62	
Flow Type	supercritical	

$D_{50} = 4''$

WCRC-6

Worksheet for Circular Channel

Project Description	
Worksheet	Willow Creek As-t
Flow Element	Circular Channel
Method	Manning's Formul
Solve For	Channel Depth

Input Data	
Mannings Coeffic	0.024 <i>CMP</i>
Slope	650000 ft/ft
Diameter	24 in
Discharge	1.59 cfs

Results	
Depth	0.18 ft
Flow Area	0.1 ft²
Wetted Perime	1.21 ft
Top Width	1.14 ft
Critical Depth	0.44 ft
Percent Full	8.8 %
Critical Slope	0.015443 ft/ft
Velocity	<u>11.66 ft/s</u>
Velocity Head	2.11 ft
Specific Energ	2.29 ft
Froude Numbe	5.93
Maximum Disc	106.27 cfs
Discharge Full	98.79 cfs
Slope Full	0.000168 ft/ft
Flow Type	Supercritical

D₅₀ = 15"

EXHIBIT 23

**ATTACHMENT 2
RECLAMATION CERTIFICATION, PUBLIC NOTICE
AND LETTERS TO AGENCY AND LAND OWNERS**

Plateau Mining Corporation
Willow Creek Mine
C/007/0038

**RE: Phase I Bond Release on 20.8 acres and Phase III Bond Release on 36.4 acres
related to the Willow Creek Mine, Mine Facilities Area.**

I herby certify to the best of my information and belief all the information contained in
this request for bond release is true and correct and that all applicable reclamation
activities have been accomplished in accordance with the requirement of the Act, the
regulatory program and the approved reclamation plan.

Dennis N. Ware

Print Name

Dennis N. Ware, Controller, 05/08/06
Sign Name, Position, Date

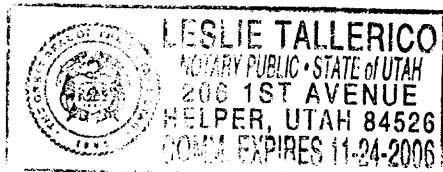
Subscribed and sworn to before me this 8th day of May, 2006

Leslie Tallerico
Notary Public

My Commission Expires: 11-24, 2006

Attest: State of Utah

County of Carbon



AFFIDAVIT OF PUBLICATION

STATE OF UTAH)

SS.

County of Carbon,)

I, Richard Shaw, on oath, say that I am the Publisher of the Sun Advocate, a twice-weekly newspaper of general circulation, published at Price, State a true copy of which is hereto attached, was published in the full issue of such newspaper for 4 (Four) publication was on the 13th day of April, 2006, and that the last publication of such notice was in the issue of such newspaper dated the 4th day of May, 2006.



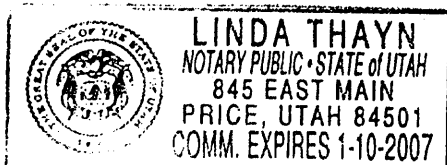
Richard Shaw - Publisher

Subscribed and sworn to before me this 4th day of May, 2006.



Notary Public My commission expires January 10, 2007 Residing at Price, Utah

Publication fee, \$665.60



PUBLIC NOTICE
APPLICATION FOR PHASE I AND PHASE III BOND RELEASE
PLATEAU MINING CORPORATION, WILLOW CREEK MINE
PERMIT C/007/038, APPROVED 04/24/2001
CARBON COUNTY, UTAH

Plateau Mining Corporation, P.O. Box 30, Helper, UT 84526, has completed Phase I of the approved reclamation plan for the 20.8 acres of land primarily related to the overland conveyor corridor in Willow Creek and Price Canyons and Phase III of the approved plan for 36.4 acres of land primarily related to the mine buildings in Willow Creek Canyon. The Phase I portion of the bond release application is based on completing the demolition, backfilling and grading and drainage control requirements in accordance with the approved reclamation plan and the Phase III portion of the bond release is based on an alternative post mining land use wherein this land is to be acquired by the College of Eastern Utah for industrial use. The reclamation work application to this bond release application was completed in August of 2004.

In accordance with the requirements of R645-301-880, of the State of Utah R645-Coal Mining Rules, notice is hereby given to the general public that Plateau Mining Corporation is applying for partial release of the performance bond posted for this operation.

The surety bond posted for the Willow Creek Mine is \$7,866,000 of which \$3,650,000 is designated for the overland conveyor corridor and the mine buildings area. Plateau Mining Corporation is seeking Phase I release of \$435,000 associated with the conveyor corridor portion of the bond and Phase III release of \$2,926,000 associated with the mine buildings portion of the bond.

The conveyor corridor and mine buildings are located on the Helper, Utah, U.S. Geological Survey 7.5 minute quadrangle map. This reclaimed land is located in Willow Creek and Price Canyons approximately 3.5 miles north of Helper, Utah on the following described lands:

Township 12 South, Range 9 East, SLB&M, Utah

Section 36: Portions of the NE1/4, NW1/4,
SE1/4, NW1/4,
SW1/4, NW1/4, and
SW1/4.

Section 35: Portions of the NE1/4, SE1/4,
SE1/4, SE1/4, and
SE1/4, NE1/4.

Township 13 South, Range 9 East, SLB&M, Utah

Section 1: Portions of the NW1/4, NW1/4,

The Utah Division of Oil, Gas and Mining will now evaluate the proposal to determine whether it meets all the criteria of the Permanent Program Performance Standards according to the requirements of the Utah Coal Mining Rules.

Written comments, objections and requests for public hearing or informal conference on this proposal may be addressed to:

Utah Coal Program
Utah Division of Oil, Gas and Mining
1594 West North Temple, Suite 1210
P.O. Box 145801
Salt Lake City, Utah 84114-5801

Closing date for submission of such comments, objections and requests for public hearing or informal conference on this proposal must be submitted to the Utah Coal Program by June 05, 2006.

Published in the Sun Advocate April 13, 20, 27 and May 4, 2006.

**PLATEAU
MINING
CORPORATION**

Willow Creek Mine
P.O. Box 30
Helper, Utah 84526

April 10, 2005

Mr. Jerry Carlson
P.O. Box 922
Price, UT 84501

Re: Notification of Application for Phase I Bond Release for the Conveyor Corridor and Phase III Bond Release for the Mine Buildings, Plateau Mining Corporation, Willow Creek Mine, C/007/038, Carbon County, Utah

Dear Mr. Carlson:

Plateau Mining Corporation, P.O. Box 30, Helper, UT 84526, has completed Phase I of the approved reclamation plan for the 20.8 acres of land primarily related to the overland conveyor corridor in Willow Creek and Price Canyons and Phase III of the approved reclamation plan for 36.4 acres of land primarily related to the mine buildings in Willow Creek Canyon. The Phase I portion of the bond release application is based on completing the demolition, backfilling and grading and drainage control requirements in accordance with the approved reclamation plan and the Phase III portion of the bond release is based on an alternative post mining land use wherein this land is to be acquired by the College of Eastern Utah for industrial use. The reclamation work applicable to this bond release application was completed in August of 2004.

In accordance with the requirements of R645-301-880, of the State of Utah R645-Coal Mining Rules, notice is hereby given to the general public that Plateau Mining Corporation is applying for partial release of the performance bond posted for this operation.

The surety bond posted for the Willow Creek Mine is \$7,866,000 of which \$3,650,000 is designated for the overland conveyor corridor and the mine buildings area. Plateau Mining Corporation is seeking Phase I release of \$435,000 associated with the conveyor corridor portion of the bond and Phase III release of \$ 2,926,000 associated with the mine buildings portion of the bond.

The conveyor corridor and mine buildings are located on the Helper, Utah, U.S. Geological Survey 7.5 minute quadrangle map. This reclaimed land is located in Willow Creek and Price Canyons approximately 3.5 miles north of Helper, Utah on the following described lands:

Township 12 South, Range 9 East, SLB&M, Utah

Section 36: Portions of the NE1/4, NW1/4,
SE1/4, NW1/4,
SW1/4, NW1/4, and
SW1/4.

Section 35: Portions of the NE1/4, SE1/4,
SE1/4, SE1/4, and
SE1/4, NE1/4.

Township 13 South, Range 9 East, SLB&M, Utah

Section 1: Portions of the NW1/4, NW1/4,

Comments concerning bond release from the legal or equitable owner of record of the surface areas to be affected and from the Federal, Utah and local government agencies which would have to initiate, implement, approve or authorize the proposed use of the land following reclamation should be mailed to: Plateau Mining Corporation, Attention: Dennis Ware, P.O. Box 30 Helper, Utah 84526.

Sincerely,



Dennis Ware
Controller and Administrative Manager
(435) 472-4737
dware@foundationcoal.com

**PLATEAU
MINING
CORPORATION**

Willow Creek Mine
P.O. Box 30
Helper, Utah 84526

April 10, 2005

Mr. Dave Levanger
Carbon County Planning and Zoning
120 East Main Street
Price, Utah 84501

Re: Notification of Application for Phase I Bond Release for the Conveyor Corridor and Phase III Bond Release for the Mine Buildings, Plateau Mining Corporation, Willow Creek Mine, C/007/038, Carbon County, Utah

Dear Mr. Levanger:

Plateau Mining Corporation, P.O. Box 30, Helper, UT 84526, has completed Phase I of the approved reclamation plan for the 20.8 acres of land primarily related to the overland conveyor corridor in Willow Creek and Price Canyons and Phase III of the approved reclamation plan for 36.4 acres of land primarily related to the mine buildings in Willow Creek Canyon. The Phase I portion of the bond release application is based on completing the demolition, backfilling and grading and drainage control requirements in accordance with the approved reclamation plan and the Phase III portion of the bond release is based on an alternative post mining land use wherein this land is to be acquired by the College of Eastern Utah for industrial use. The reclamation work applicable to this bond release application was completed in August of 2004.

In accordance with the requirements of R645-301-880, of the State of Utah R645-Coal Mining Rules, notice is hereby given to the general public that Plateau Mining Corporation is applying for partial release of the performance bond posted for this operation.

The surety bond posted for the Willow Creek Mine is \$7,866,000 of which \$3,650,000 is designated for the overland conveyor corridor and the mine buildings area. Plateau Mining Corporation is seeking Phase I release of \$435,000 associated with the conveyor corridor portion of the bond and Phase III release of \$ 2,926,000 associated with the mine buildings portion of the bond.

The conveyor corridor and mine buildings are located on the Helper, Utah, U.S. Geological Survey 7.5 minute quadrangle map. This reclaimed land is located in Willow Creek and Price Canyons approximately 3.5 miles north of Helper, Utah on the following described lands:

Township 12 South, Range 9 East, SLB&M, Utah

Section 36: Portions of the NE1/4, NW1/4,
SE1/4, NW1/4,
SW1/4, NW1/4, and
SW1/4.

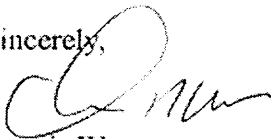
Section 35: Portions of the NE1/4, SE1/4,
SE1/4, SE1/4, and
SE1/4, NE1/4.

Township 13 South, Range 9 East, SLB&M, Utah

Section 1: Portions of the NW1/4, NW1/4,

Comments concerning bond release from the legal or equitable owner of record of the surface areas to be affected and from the Federal, Utah and local government agencies which would have to initiate, implement, approve or authorize the proposed use of the land following reclamation should be mailed to: Plateau Mining Corporation, Attention: Dennis Ware, P.O. Box 30 Helper, Utah 84526.

Sincerely,



Dennis Ware

Controller and Administrative Manager

(435) 472-4737

dware@foundationcoal.com

**PLATEAU
MINING
CORPORATION**

Willow Creek Mine
P.O. Box 30
Helper, Utah 84526

April 10, 2005

Mr. Roger Wheeler
Director Land Management
Blackhawk Coal Company
700 Morrison Road
Gahanna, Ohio 43230-6642

Re: Notification of Application for Phase I Bond Release for the Conveyor Corridor and Phase III Bond Release for the Mine Buildings, Plateau Mining Corporation, Willow Creek Mine, C/007/038, Carbon County, Utah

Dear Mr. Wheeler:

Plateau Mining Corporation, P.O. Box 30, Helper, UT 84526, has completed Phase I of the approved reclamation plan for the 20.8 acres of land primarily related to the overland conveyor corridor in Willow Creek and Price Canyons and Phase III of the approved reclamation plan for 36.4 acres of land primarily related to the mine buildings in Willow Creek Canyon. The Phase I portion of the bond release application is based on completing the demolition, backfilling and grading and drainage control requirements in accordance with the approved reclamation plan and the Phase III portion of the bond release is based on an alternative post mining land use wherein this land is to be acquired by the College of Eastern Utah for industrial use. The reclamation work applicable to this bond release application was completed in August of 2004.

In accordance with the requirements of R645-301-880, of the State of Utah R645-Coal Mining Rules, notice is hereby given to the general public that Plateau Mining Corporation is applying for partial release of the performance bond posted for this operation.

The surety bond posted for the Willow Creek Mine is \$7,866,000 of which \$3,650,000 is designated for the overland conveyor corridor and the mine buildings area. Plateau Mining Corporation is seeking Phase I release of \$435,000 associated with the conveyor corridor portion of the bond and Phase III release of \$ 2,926,000 associated with the mine buildings portion of the bond.

The conveyor corridor and mine buildings are located on the Helper, Utah, U.S. Geological Survey 7.5 minute quadrangle map. This reclaimed land is located in Willow Creek and Price Canyons approximately 3.5 miles north of Helper, Utah on the following described lands:

Township 12 South, Range 9 East, SLB&M, Utah

Section 36: Portions of the NE1/4, NW1/4,
SE1/4, NW1/4,
SW1/4, NW1/4, and
SW1/4.


Section 35: Portions of the NE1/4, SE1/4,
SE1/4, SE1/4, and
SE1/4, NE1/4.

Township 13 South, Range 9 East, SLB&M, Utah

Section 1: Portions of the NW1/4, NW1/4.

Comments concerning bond release from the legal or equitable owner of record of the surface areas to be affected and from the Federal, Utah and local government agencies which would have to initiate, implement, approve or authorize the proposed use of the land following reclamation should be mailed to: Plateau Mining Corporation, Attention: Dennis Ware, P.O. Box 30 Helper, Utah 84526.

Sincerely,



Dennis Ware
Controller and Administrative Manager
(435) 472-4737
dware@foundationcoal.com

PLATEAU
MINING
CORPORATION

Willow Creek Mine
P.O. Box 30
Helper, Utah 84526

April 10, 2005

Mr. Gary Harwood
Helper City
P.O. Box 221
Helper, Utah 84526

Re: Notification of Application for Phase I Bond Release for the Conveyor Corridor and Phase III Bond Release for the Mine Buildings, Plateau Mining Corporation, Willow Creek Mine, C/007/038, Carbon County, Utah

Dear Mr. Harwood:

Plateau Mining Corporation, P.O. Box 30, Helper, UT 84526, has completed Phase I of the approved reclamation plan for the 20.8 acres of land primarily related to the overland conveyor corridor in Willow Creek and Price Canyons and Phase III of the approved reclamation plan for 36.4 acres of land primarily related to the mine buildings in Willow Creek Canyon. The Phase I portion of the bond release application is based on completing the demolition, backfilling and grading and drainage control requirements in accordance with the approved reclamation plan and the Phase III portion of the bond release is based on an alternative post mining land use wherein this land is to be acquired by the College of Eastern Utah for industrial use. The reclamation work applicable to this bond release application was completed in August of 2004.

In accordance with the requirements of R645-301-880, of the State of Utah R645-Coal Mining Rules, notice is hereby given to the general public that Plateau Mining Corporation is applying for partial release of the performance bond posted for this operation.

The surety bond posted for the Willow Creek Mine is \$7,866,000 of which \$3,650,000 is designated for the overland conveyor corridor and the mine buildings area. Plateau Mining Corporation is seeking Phase I release of \$435,000 associated with the conveyor corridor portion of the bond and Phase III release of \$ 2,926,000 associated with the mine buildings portion of the bond.

The conveyor corridor and mine buildings are located on the Helper, Utah, U.S. Geological Survey 7.5 minute quadrangle map. This reclaimed land is located in Willow Creek and Price Canyons approximately 3.5 miles north of Helper, Utah on the following described lands:

Township 12 South, Range 9 East, SLB&M, Utah

Section 36: Portions of the NE1/4, NW1/4,
SE1/4, NW1/4,
SW1/4, NW1/4, and
SW1/4.

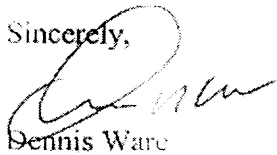
Section 35: Portions of the NE1/4, SE1/4,
SE1/4, SE1/4, and
SE1/4, NE1/4.

Township 13 South, Range 9 East, SLB&M, Utah

Section 1: Portions of the NW1/4, NW1/4.

Comments concerning bond release from the legal or equitable owner of record of the surface areas to be affected and from the Federal, Utah and local government agencies which would have to initiate, implement, approve or authorize the proposed use of the land following reclamation should be mailed to: Plateau Mining Corporation, Attention: Dennis Ware, P.O. Box 30 Helper, Utah 84526.

Sincerely,



Dennis Ware

Controller and Administrative Manager

(435) 472-4737

dware@foundationcoal.com

**PLATEAU
MINING
CORPORATION**

Willow Creek Mine
P.O. Box 30
Helper, Utah 84526

April 10, 2005

Mr. Harold Cunningham
Utah Power and Light - Carbon Plant
Helper, Utah 84526

Re: Notification of Application for Phase I Bond Release for the Conveyor Corridor and Phase III Bond Release for the Mine Buildings, Plateau Mining Corporation, Willow Creek Mine, C/007/038, Carbon County, Utah

Dear Mr. Cunningham:

Plateau Mining Corporation, P.O. Box 30, Helper, UT 84526, has completed Phase I of the approved reclamation plan for the 20.8 acres of land primarily related to the overland conveyor corridor in Willow Creek and Price Canyons and Phase III of the approved reclamation plan for 36.4 acres of land primarily related to the mine buildings in Willow Creek Canyon. The Phase I portion of the bond release application is based on completing the demolition, backfilling and grading and drainage control requirements in accordance with the approved reclamation plan and the Phase III portion of the bond release is based on an alternative post mining land use wherein this land is to be acquired by the College of Eastern Utah for industrial use. The reclamation work applicable to this bond release application was completed in August of 2004.

In accordance with the requirements of R645-301-880, of the State of Utah R645-Coal Mining Rules, notice is hereby given to the general public that Plateau Mining Corporation is applying for partial release of the performance bond posted for this operation.

The surety bond posted for the Willow Creek Mine is \$7,866,000 of which \$3,650,000 is designated for the overland conveyor corridor and the mine buildings area. Plateau Mining Corporation is seeking Phase I release of \$435,000 associated with the conveyor corridor portion of the bond and Phase III release of \$ 2,926,000 associated with the mine buildings portion of the bond.

The conveyor corridor and mine buildings are located on the Helper, Utah, U.S. Geological Survey 7.5 minute quadrangle map. This reclaimed land is located in Willow Creek and Price Canyons approximately 3.5 miles north of Helper, Utah on the following described lands:

Township 12 South, Range 9 East, SLB&M, Utah

Section 36: Portions of the NE1/4, NW1/4,
SE1/4, NW1/4,
SW1/4, NW1/4, and
SW1/4.

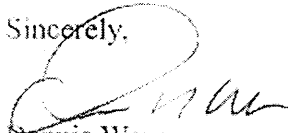
Section 35: Portions of the NE1/4, SE1/4,
SE1/4, SE1/4, and
SE1/4, NE1/4.

Township 13 South, Range 9 East, SLB&M, Utah

Section 1: Portions of the NW1/4, NW1/4.

Comments concerning bond release from the legal or equitable owner of record of the surface areas to be affected and from the Federal, Utah and local government agencies which would have to initiate, implement, approve or authorize the proposed use of the land following reclamation should be mailed to: Plateau Mining Corporation, Attention: Dennis Ware, P.O. Box 30 Helper, Utah 84526.

Sincerely,



Dennis Ware

Controller and Administrative Manager

(435) 472-4737

dware@foundationcoal.com

PLATEAU
MINING
CORPORATION

Willow Creek Mine
P.O. Box 30
Helper, Utah 84526

April 10, 2005

Carbon County Commissioners
120 East Main Street
Price, Utah 84501

Re: Notification of Application for Phase I Bond Release for the Conveyor Corridor and Phase III Bond Release for the Mine Buildings, Plateau Mining Corporation, Willow Creek Mine, C/007/038, Carbon County, Utah

Dear Commissioners:

Plateau Mining Corporation, P.O. Box 30, Helper, UT 84526, has completed Phase I of the approved reclamation plan for the 20.8 acres of land primarily related to the overland conveyor corridor in Willow Creek and Price Canyons and Phase III of the approved reclamation plan for 36.4 acres of land primarily related to the mine buildings in Willow Creek Canyon. The Phase I portion of the bond release application is based on completing the demolition, backfilling and grading and drainage control requirements in accordance with the approved reclamation plan and the Phase III portion of the bond release is based on an alternative post mining land use wherein this land is to be acquired by the College of Eastern Utah for industrial use. The reclamation work applicable to this bond release application was completed in August of 2004.

In accordance with the requirements of R645-301-880, of the State of Utah R645-Coal Mining Rules, notice is hereby given to the general public that Plateau Mining Corporation is applying for partial release of the performance bond posted for this operation.

The surety bond posted for the Willow Creek Mine is \$7,866,000 of which \$3,650,000 is designated for the overland conveyor corridor and the mine buildings area. Plateau Mining Corporation is seeking Phase I release of \$435,000 associated with the conveyor corridor portion of the bond and Phase III release of \$ 2,926,000 associated with the mine buildings portion of the bond.

The conveyor corridor and mine buildings are located on the Helper, Utah, U.S. Geological Survey 7.5 minute quadrangle map. This reclaimed land is located in Willow Creek and Price Canyons approximately 3.5 miles north of Helper, Utah on the following described lands:

Township 12 South, Range 9 East, SLB&M, Utah

Section 36: Portions of the NE1/4, NW1/4,
SE1/4, NW1/4,
SW1/4, NW1/4, and
SW1/4.

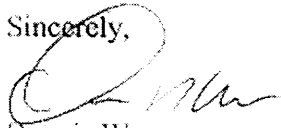
Section 35: Portions of the NE1/4, SE1/4,
SE1/4, SE1/4, and
SE1/4, NE1/4.

Township 13 South, Range 9 East, SLB&M, Utah

Section 1: Portions of the NW1/4, NW1/4.

Comments concerning bond release from the legal or equitable owner of record of the surface areas to be affected and from the Federal, Utah and local government agencies which would have to initiate, implement, approve or authorize the proposed use of the land following reclamation should be mailed to: Plateau Mining Corporation, Attention: Dennis Ware, P.O. Box 30 Helper, Utah 84526.

Sincerely,



Dennis Ware

Controller and Administrative Manager

(435) 472-4737

dware@foundationcoal.com

**PLATEAU
MINING
CORPORATION**

Willow Creek Mine
P.O. Box 30
Helper, Utah 84526

April 10, 2005

Mr. Phil Palmer
Price River Water Improvement District
P.O. Box 903
265 South Highgrounds Road
Price, Utah 84501

Re: Notification of Application for Phase I Bond Release for the Conveyor Corridor and Phase III Bond Release for the Mine Buildings, Plateau Mining Corporation, Willow Creek Mine, C/007/038, Carbon County, Utah

Dear Mr. Palmer:

Plateau Mining Corporation, P.O. Box 30, Helper, UT 84526, has completed Phase I of the approved reclamation plan for the 20.8 acres of land primarily related to the overland conveyor corridor in Willow Creek and Price Canyons and Phase III of the approved reclamation plan for 36.4 acres of land primarily related to the mine buildings in Willow Creek Canyon. The Phase I portion of the bond release application is based on completing the demolition, backfilling and grading and drainage control requirements in accordance with the approved reclamation plan and the Phase III portion of the bond release is based on an alternative post mining land use wherein this land is to be acquired by the College of Eastern Utah for industrial use. The reclamation work applicable to this bond release application was completed in August of 2004.

In accordance with the requirements of R645-301-880, of the State of Utah R645-Coal Mining Rules, notice is hereby given to the general public that Plateau Mining Corporation is applying for partial release of the performance bond posted for this operation.

The surety bond posted for the Willow Creek Mine is \$7,866,000 of which \$3,650,000 is designated for the overland conveyor corridor and the mine buildings area. Plateau Mining Corporation is seeking Phase I release of \$435,000 associated with the conveyor corridor portion of the bond and Phase III release of \$ 2,926,000 associated with the mine buildings portion of the bond.

The conveyor corridor and mine buildings are located on the Helper, Utah, U.S. Geological Survey 7.5 minute quadrangle map. This reclaimed land is located in Willow Creek and Price Canyons approximately 3.5 miles north of Helper, Utah on the following described lands:

Township 12 South, Range 9 East, SLB&M, Utah

Section 36: Portions of the NE1/4, NW1/4,
SE1/4, NW1/4,
SW1/4, NW1/4, and
SW1/4.

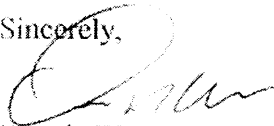
Section 35: Portions of the NE1/4, SE1/4,
SE1/4, SE1/4, and
SE1/4, NE1/4.

Township 13 South, Range 9 East, SLB&M, Utah

Section 1: Portions of the NW1/4, NW1/4,

Comments concerning bond release from the legal or equitable owner of record of the surface areas to be affected and from the Federal, Utah and local government agencies which would have to initiate, implement, approve or authorize the proposed use of the land following reclamation should be mailed to: Plateau Mining Corporation, Attention: Dennis Ware, P.O. Box 30 Helper, Utah 84526.

Sincerely,



Dennis Ware
Controller and Administrative Manager
(435) 472-4737
dware@foundationcoal.com

**PLATEAU
MINING
CORPORATION**

Willow Creek Mine
P.O. Box 30
Helper, Utah 84526

April 10, 2006

Mr. Patrick Gubbins
Bureau of Land Management
125 South 600 West
Price, Utah 84501

Re: Notification of Application for Phase I Bond Release for the Conveyor Corridor and Phase III Bond Release for the Mine Buildings, Plateau Mining Corporation, Willow Creek Mine, C/007/038, Carbon County, Utah

Dear Mr. Gubbins:

Plateau Mining Corporation, P.O. Box 30, Helper, UT 84526, has completed Phase I of the approved reclamation plan for the 20.8 acres of land primarily related to the overland conveyor corridor in Willow Creek and Price Canyons and Phase III of the approved reclamation plan for 36.4 acres of land primarily related to the mine buildings in Willow Creek Canyon. The Phase I portion of the bond release application is based on completing the demolition, backfilling and grading and drainage control requirements in accordance with the approved reclamation plan and the Phase III portion of the bond release is based on an alternative post mining land use wherein this land is to be acquired by the College of Eastern Utah for industrial use. The reclamation work applicable to this bond release application was completed in August of 2004.

In accordance with the requirements of R645-301-880, of the State of Utah R645-Coal Mining Rules, notice is hereby given to the general public that Plateau Mining Corporation is applying for partial release of the performance bond posted for this operation.

The surety bond posted for the Willow Creek Mine is \$7,866,000 of which \$3,650,000 is designated for the overland conveyor corridor and the mine buildings area. Plateau Mining Corporation is seeking Phase I release of \$435,000 associated with the conveyor corridor portion of the bond and Phase III release of \$ 2,926,000 associated with the mine buildings portion of the bond.

The conveyor corridor and mine buildings are located on the Helper, Utah, U.S. Geological Survey 7.5 minute quadrangle map. This reclaimed land is located in Willow Creek and Price Canyons approximately 3.5 miles north of Helper, Utah on the following described lands:

Township 12 South, Range 9 East, SLB&M, Utah

Section 36: Portions of the NE1/4, NW1/4,
SE1/4, NW1/4,
SW1/4, NW1/4, and
SW1/4.

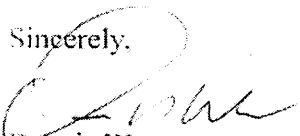
Section 35: Portions of the NE1/4, SE1/4,
SE1/4, SE1/4, and
SE1/4, NE1/4.

Township 13 South, Range 9 East, SLB&M, Utah

Section 1: Portions of the NW1/4, NW1/4.

Comments concerning bond release from the legal or equitable owner of record of the surface areas to be affected and from the Federal, Utah and local government agencies which would have to initiate, implement, approve or authorize the proposed use of the land following reclamation should be mailed to: Plateau Mining Corporation, Attention: Dennis Ware, P.O. Box 30 Helper, Utah 84526.

Sincerely,



Dennis Ware
Controller and Administrative Manager
(435) 472-4737
dware@foundationcoal.com

PLATEAU
MINING
CORPORATION

Willow Creek Mine
P.O. Box 30
Helper, Utah 84526

April 10, 2005

Mr. Kevin S. Carter
Director
School and Institutional Trust Lands Administration
675 East 500 South, Suite 500
Salt Lake City, Utah 84102-2818

Re: Notification of Application for Phase I Bond Release for the Conveyor Corridor and Phase III Bond Release for the Mine Buildings, Plateau Mining Corporation, Willow Creek Mine, C/007/038, Carbon County, Utah

Dear Mr. Carter:

Plateau Mining Corporation, P.O. Box 30, Helper, UT 84526, has completed Phase I of the approved reclamation plan for the 20.8 acres of land primarily related to the overland conveyor corridor in Willow Creek and Price Canyons and Phase III of the approved reclamation plan for 36.4 acres of land primarily related to the mine buildings in Willow Creek Canyon. The Phase I portion of the bond release application is based on completing the demolition, backfilling and grading and drainage control requirements in accordance with the approved reclamation plan and the Phase III portion of the bond release is based on an alternative post mining land use wherein this land is to be acquired by the College of Eastern Utah for industrial use. The reclamation work applicable to this bond release application was completed in August of 2004.

In accordance with the requirements of R645-301-880, of the State of Utah R645-Coal Mining Rules, notice is hereby given to the general public that Plateau Mining Corporation is applying for partial release of the performance bond posted for this operation.

The surety bond posted for the Willow Creek Mine is \$7,866,000 of which \$3,650,000 is designated for the overland conveyor corridor and the mine buildings area. Plateau Mining Corporation is seeking Phase I release of \$435,000 associated with the conveyor corridor portion of the bond and Phase III release of \$ 2,926,000 associated with the mine buildings portion of the bond.

The conveyor corridor and mine buildings are located on the Helper, Utah, U.S. Geological Survey 7.5 minute quadrangle map. This reclaimed land is located in Willow Creek and Price Canyons approximately 3.5 miles north of Helper, Utah on the following described lands:

Township 12 South, Range 9 East, SLB&M, Utah

Section 36: Portions of the NE1/4, NW1/4,
SE1/4, NW1/4,
SW1/4, NW1/4, and
SW1/4.

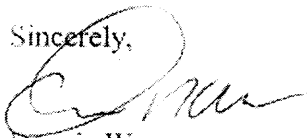
Section 35: Portions of the NE1/4, SE1/4,
SE1/4, SE1/4, and
SE1/4, NE1/4.

Township 13 South, Range 9 East, SLB&M, Utah

Section 1: Portions of the NW1/4, NW1/4.

Comments concerning bond release from the legal or equitable owner of record of the surface areas to be affected and from the Federal, Utah and local government agencies which would have to initiate, implement, approve or authorize the proposed use of the land following reclamation should be mailed to: Plateau Mining Corporation, Attention: Dennis Ware, P.O. Box 30 Helper, Utah 84526.

Sincerely,



Dennis Ware

Controller and Administrative Manager

(435) 472-4737

dware@foundationcoal.com

PLATEAU
MINING
CORPORATION

Willow Creek Mine
P.O. Box 30
Helper, Utah 84526

April 10, 2005

Mr. Hugh Kirkham
State of Utah
Department of Transportation
940 South Carbon Avenue
Price, Utah 84501

Re: Notification of Application for Phase I Bond Release for the Conveyor Corridor and Phase III Bond Release for the Mine Buildings, Plateau Mining Corporation, Willow Creek Mine, C/007/038, Carbon County, Utah

Dear Mr. Kirkham:

Plateau Mining Corporation, P.O. Box 30, Helper, UT 84526, has completed Phase I of the approved reclamation plan for the 20.8 acres of land primarily related to the overland conveyor corridor in Willow Creek and Price Canyons and Phase III of the approved reclamation plan for 36.4 acres of land primarily related to the mine buildings in Willow Creek Canyon. The Phase I portion of the bond release application is based on completing the demolition, backfilling and grading and drainage control requirements in accordance with the approved reclamation plan and the Phase III portion of the bond release is based on an alternative post mining land use wherein this land is to be acquired by the College of Eastern Utah for industrial use. The reclamation work applicable to this bond release application was completed in August of 2004.

In accordance with the requirements of R645-301-880, of the State of Utah R645-Coal Mining Rules, notice is hereby given to the general public that Plateau Mining Corporation is applying for partial release of the performance bond posted for this operation.

The surety bond posted for the Willow Creek Mine is \$7,866,000 of which \$3,650,000 is designated for the overland conveyor corridor and the mine buildings area. Plateau Mining Corporation is seeking Phase I release of \$435,000 associated with the conveyor corridor portion of the bond and Phase III release of \$ 2,926,000 associated with the mine buildings portion of the bond.

The conveyor corridor and mine buildings are located on the Helper, Utah, U.S. Geological Survey 7.5 minute quadrangle map. This reclaimed land is located in Willow Creek and Price Canyons approximately 3.5 miles north of Helper, Utah on the following described lands:

Township 12 South, Range 9 East, SLB&M, Utah

Section 36: Portions of the NE1/4, NW1/4,
SE1/4, NW1/4,
SW1/4, NW1/4, and
SW1/4.

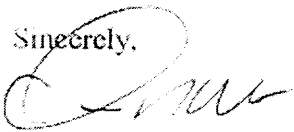
Section 35: Portions of the NE1/4, SE1/4,
SE1/4, SE1/4, and
SE1/4, NE1/4.

Township 13 South, Range 9 East, SLB&M, Utah

Section 1: Portions of the NW1/4, NW1/4.

Comments concerning bond release from the legal or equitable owner of record of the surface areas to be affected and from the Federal, Utah and local government agencies which would have to initiate, implement, approve or authorize the proposed use of the land following reclamation should be mailed to: Plateau Mining Corporation, Attention: Dennis Ware, P.O. Box 30 Helper, Utah 84526.

Sincerely,



Dennis Ware

Controller and Administrative Manager

(435) 472-4737

dware@foundationcoal.com

EXHIBIT 23

**ATTACHMENT 3
BOND RELEASE CALCULATIONS**

Breakout of Bond Amount Willow Creek Mine, Main Facilities Area

The following breakout of the bond cost by area for Phase III and Phase I bond release is based on the bond cost calculations in Exhibit 17 which are the bond costs for the "Full Reclamation Option".

	Exhibit 17 Bond Cost	Breakout by Area	
		36.4 Acres Phase III	20.8 Acres Phase I
Direct Costs			
Demolition	\$1,229,034	\$1,073,552	\$155,482 (see note 1 below)
Backfilling and Grading	\$829,368	\$622,026	\$207,342 (see note 2 below)
Revegetation:			
Drainage Controls	\$81,575	\$49,761	\$31,814 (see note 3 below)
Revegetation	\$328,866	\$233,495	\$95,371 (see note 4 below)
Total Direct Costs	\$2,468,843	\$1,978,834	\$490,009
Indirect Costs			
Mob/Demob (10.0%)	\$246,884	\$197,883	\$49,001
Contingency (5.0%)	\$123,442	\$98,942	\$24,500
Engineering Redesign (2.5%)	\$61,721	\$49,471	\$12,250
Main Office Expense (6.8%)	\$167,882	\$134,561	\$33,321
Project Management Fee (2.5%)	\$61,721	\$49,471	\$12,250
Subtotal Indirect Costs (26.8%)	\$661,650	\$530,328	\$131,322
Costs in 2001 Dollars	\$3,130,493	\$2,509,162	\$621,331
Escalation (3.12% / 5 years)	\$519,796	\$416,628	\$103,168
Reclamation Cost in 2006 Dollars	\$3,650,289	\$2,925,790	\$724,499
Bond Reduction %		100.00%	60.00%
Bond Reduction	\$3,360,489	\$2,925,790	\$434,699
Remaining Bond	\$289,800	\$0	\$289,800

Note 1: The **demolition cost** for the Willow Creek Mine, Main Facilities Area is detailed in Exhibit 17 of the MRP and broken down between Phase III and Phase I bond release areas on the attached "Demolition Cost Breakout" worksheet.

Note 2: The **backfilling and grading** for the Willow Creek Mine, Main Facilities Area detailed in Exhibit 17 of the MRP is broken down between Phase III and Phase I bond release as follows: The total cubic yards of cut and fill shown on Map E17-1 was split between Phase III and Phase I the results of which are shown below. Since Map E17 does not include the cut and fill for ponds 12A and 12B these figures were taken from Table 5.4-2.

	Total	Phase III	Phase I
Map E17-1 Cut	392,212	228,260	163,952
Map E17-1 Fill	367,436	363,026	4,410
Table 5.4-2 Pond 12A and 12B Cut	12,554	0	12,554
Table 5.4-2 Pond 12A and 12B Fill	12,151	0	12,151
Total	784,353	591,286	193,067
Percent	100%	75%	25%

Note 3: The **drainage controls** for the Willow Creek Mine, Main Facilities Area detailed in Exhibit 17 of the MRP and broken down between Phase III and Phase I bond release as follows: There were 19 channels in the full reclamation option used to calculate the bond cost. Of these 19 channels, 10 were in the area to receive Phase III bond release and 9 were in the Phase I bond release area. The total length of the channels in the Phase III bond release area is 4,553 feet while 2,859 feet of channel is in the Phase I bond release area. Using channel footage, 61% is in the Phase III bond release area and 39% is in the Phase I area. These channels can be seen on Maps 21A thru 21E.

Note 4: The **revegetation** for the Willow Creek Mine, Main Facilities Area detailed in Exhibit 17 of the MRP is broken down between Phase III and Phase I bond release as follows: The total square feet to be revegetated in the bond cost calculation is 2,215,000. An autocad calculation of the area to be revegetated from Map 21F (Postmining Reclamation Treatment and Watershed) shows 71% of the area to be revegetated is in the Phase III area and 29% is in the Phase I area.

Demolition Cost Breakout

Preparation Plant Bond from Exhibit 17 of the MRP

Bond Reduction Phase	Phase III	Phase I	Total
Fire Water Tank 500000 gal 001	\$11,662		\$11,662
Propane Tanks 002	\$3,295		\$3,295
ROM Reclaim Tunnel 003	\$603		\$603
Canopy 004	\$3,990		\$3,990
Mine Ventilation Set Fan 005	\$10,226		\$10,226
Vent Shaft Seal 006	\$51,418		\$51,418
Mine Substation 007	\$16,353		\$16,353
Conveyor Belt UG1 and Bld 008	\$48,152		\$48,152
Sediment Ponds No 12A and B 009		\$1,257	\$1,257
Crude Oil Storage 010	\$997		\$997
Temp Coal Waste Storage 011	\$240		\$240
Mag Chloride Tank 012	\$348		\$348
ROM Stockpile MCC Bld 013	\$654		\$654
Seal Portals 014	\$62,500		\$62,500
Shop Bld 015	\$122,641		\$122,641
Warehouse Bld 016	\$135,751		\$135,751
Admin Bathhouse Bld 017	\$256,445		\$256,445
Potable Water Tank 018	\$1,586		\$1,586
ROM Stacking Tube Silo 019	\$17,737		\$17,737
Conveyor Belt SC1 020	\$61,993		\$61,993
Conveyor Belt SC2 021	\$86,598		\$86,598
Conveyor Belt SC3 022		\$7,680	\$7,680
Water Line 023		\$7,680	\$7,680
Seal Portals 025		\$50,000	\$50,000
Sediment Pond No 1 024	\$2,093		\$2,093
Office Trailer 026		\$2,390	\$2,390
Sediment Pond No 2 027		\$486	\$486
Conveyor Belt SC4 028		\$85,989	\$85,989
Power Line 029	\$5,366		\$5,366
Fuel Tank 030	\$4,251		\$4,251
Pump House No 3 031	\$4,305		\$4,305
Fire Hydrant 032	\$3,280		\$3,280
Motor Control Bld 033	\$1,326		\$1,326
Misc Sheds 034	\$10,000		\$10,000
Explosive Magazines 035	\$302		\$302
Rock Dust Bin 036	\$10,384		\$10,384
Control Bld 037	\$261		\$261
Storage Shed 038	\$1,692		\$1,692
Hilfiker 039	\$9,963		\$9,963
Guard Rail 040	\$31,616		\$31,616
Asphalt 041	\$95,524		\$95,524
Total	\$1,073,562	\$155,482	\$1,229,034

EXHIBIT 23

**ATTACHMENT 4
PORTAL AREA FILL SLOPE STABILITY**

ATTACHMENT 4 PORTAL AREA FILL SLOPE STABILITY

Concern has been expressed about the stability of the fill slope covering the portals and highwall due to some erosion that occurred in January of 2005. Joe Helfrich of the Division of Oil, Gas and Mining indicated the erosion on his January 26, 2005 inspection report. The erosion occurred before the seeds broadcast in August of 2004 had a chance to grow and provide vegetative stability. The observed erosion occurred after a snow storm that left up to 12-inches of snow on the slope and then a hard freeze. The hard freeze was followed by a very warm day that melted the snow rapidly but did not thaw the frozen soil, other than the surface. The underlying frozen soil did not allow for any infiltration of the melting snow. Thus all of the melting snow had to runoff the slope. The resulting runoff of water and slush overflowed the gouges in a few areas causing some rill erosion. The erosion does not exceed the criteria established in Exhibit 23 Section 5.4.2.3, Post-Reclamation Management and Monitoring for erosion requiring a response. This section identifies a gully of 1 foot in depth or greater as requiring corrective action. However, a gully was repaired on April 25, 2006 as requested by the Willow Creek Mine DOGM inspector, Joe Helfrich. This repair work included placing of rocks and boulders in the small gully at various intervals of approximately 10 feet. A small amount of seed (approximately one pound) was also applied in this area. Since the initial erosion occurred in January of 2005 no additional erosion has been apparent although there has been numerous thunderstorms that have hit the area. Pictures of the slope are included in this Attachment as well as observations recorded by Layne Jensen, P.E. EarthFax Engineering, Dennis Ware, with Plateau Mining Corporation's Willow Creek Mine and Joe Helfrich of the Division of Oil, Gas and Mining.

At the request of the Division of Oil, Gas and Mining a sediment yield calculation similar to the evaluation found in Appendix H-4 of Exhibit 13 has been conducted for the portal area fill slope. The results of this evaluation are included in this Attachment. The sediment yield calculations evaluated three conditions. The conditions evaluated are premining, current (April 2006), and long term post reclamation (after full vegetation establishment). The evaluation determined a pre-mining sediment yield of 24.3 tons/acre/year. A current sediment yield of 24.5 tons/acre/year and a long-term post reclamation sediment yield of 23.3 tons/acre/year. The improvement of the long-term post reclamation over the pre-mining sediment yield is the result of vegetation more effective at controlling erosion. The premining vegetation type was a pinyon-juniper as seen on adjacent undisturbed slopes. The pinyon-juniper trees discourage the growth of other vegetation by taking available water and by making soil immediately around the tree less fertile. Thus, overall vegetation density is less for the pinyon-juniper vegetation type than occurs in the reclaimed areas. The current sediment yield is slightly higher than the pre-mining sediment yield because vegetation is not yet fully established. We expect that a second growing season will provide more vegetation to stabilize the slope. It should be noted that the vegetative density was estimated before plants were actively growing and a vegetative density estimation would likely provide a greater density in late spring / early summer when vegetation studies are typically conducted.

Although reclamation was conducted to meet effluent sediment limitation, Sediment Pond 001 was left in place to treat runoff from the industrial land use area. The highwall area is within the industrial land use area and drains to Pond 001. Pond 001 was built to handle a mine discharge of 0.89 acre-feet per day and a 10-year 24-hour storm event of 1.8 inches with a total storm volume of 3.36 acre-feet. Pond 001 has a capacity of 11.5 acre-feet (see Exhibit 13 Appendix C). Given that a storm of 1.8 inches produces 3.36 acre-feet a storm three times that size (5.4 inches) would still not make the pond spill. Hence even excessive erosion of the portal area fill slope would not contribute additional sediment to Willow Creek since all runoff and sediment will be contained in Pond 001. Ultimately, the purpose of regulations regarding erosion is to limit sediment discharge to adjacent waterways. Pond 001 will prevent sediment from reaching Willow Creek.

Despite two heavy winters and wet springs since the portal area was reclaimed there is no evidence of mass failure of the slope. As can be seen on the photos the erosion that occurred during the winter of 2005 cannot be easily seen. Although adjacent undisturbed areas still drain onto the reclaimed slope the path runoff from undisturbed areas takes through the reclaimed area has stabilized due to the high nature rock content of the soil. Little additional erosion is occurring.

OBSERVATIONS AND INSPECTION REPORTS

Observations by Dennis Ware

I first saw the erosion of the slope a day or so after it occurred. The observed erosion occurred after a snow storm that left up to 12-inches of snow on the slope followed by a hard freeze. The hard freeze was followed by a very warm day that melted the snow rapidly but did not thaw the frozen soil, other than the surface. The underlying frozen soil did not allow for any infiltration of the melting snow. Thus all of the melting snow had to runoff the slope.

Since the erosion event I have examined the site at least one a week and during or after every significant storm event. Since the initial erosion event in January of 2005 fifteen months have passed over which time there have been many rain storms and snow melt events with no further detectable erosion having taken place. The last major rain event occurred on March 29th 2006 at about 10:00 a.m. which resulted in approximately one-half inch or more of rain falling over approximately a half hour period of time followed by off and on rain for the next four or five hours. This storm was preceded by rainfall the prior day which had the soil fairly well saturated. Despite this significant storm event there was no additional erosion observed during or after the storm.

Observations by Layne Jensen, P.E.

I first saw the erosion of the slope a few days after it occurred. At that time there was a few large piles of snow and sediment at the toe of the slope. The size of the piles at the toe of the slope made it look like a very large erosion event. However, after the snow had melted the actual volume of sediment was approximately 1 cubic yard. The vast majority of material that came off the slope ended up being snow. Since the erosion event I have been at the site every 2 to 4 months. Each time I visit the site I have driven by the slope to see if there has been additional erosion or any evidence of slope instability. Since the initial erosion event I have not noticed additional erosion occurring or any slope instability although there has been above average precipitation and many large storm events. I believe that the paths conveying runoff from adjacent undisturbed area through the reclaimed area have stabilized and will not erode any faster than the adjacent undisturbed areas. As vegetation has more time to become established the slope will become even more erosionally stable.



State of Utah

Department of Natural Resources

MICHAEL R. STYLER
Executive Director

Division of Oil, Gas & Mining

JOHN R. BAZA
Division Director

JON M. HUNTSMAN, JR.
Governor

GARY R. HERBERT
Lieutenant Governor

Representatives Present During the Inspection:

OGM	Joe Helfrich	Environmental Scientist III
Company	Layne D. Jensen	Environmental Engineer
Company	Dennis Ware	Controller

Inspection Report

Permit Number:	C0070038
Inspection Type:	PARTIAL
Inspection Date:	Tuesday, April 11, 2006
Start Date/Time:	4/11/2006 9:30:00 AM
End Date/Time:	4/11/2006 2:30:00 PM
Last Inspection:	Thursday, March 16, 2006

Inspector: Joe Helfrich, Environmental Scientist III

Weather: cool, partly cloudy, 50

InspectionID Report Number: 922

Accepted by: whedberg

4/14/2006

Permittee: **PLATEAU MINING CORP**

Operator: **PLATEAU MINING CORP**

Site: **WILLOW CREEK MINE**

Address: **PO BOX 30, HELPER UT 84526-0030**

County: **CARBON**

Permit Type: **PERMANENT COAL PROGRAM**

Permit Status: **ACTIVE**

Current Acreages

14,662.49	Total Permitted
154.05	Total Disturbed
	Phase I
	Phase II
	Phase III

Mineral Ownership

- ☒ Federal
- ☐ State
- ☐ County
- ☒ Fee
- ☒ Other

Types of Operations

- ☒ Underground
- ☐ Surface
- ☒ Loadout
- ☐ Processing
- ☐ Reprocessing

Report summary and status for pending enforcement actions, permit conditions, Division Orders, and amendments:

The purpose of this site visit was to conduct a partial inspection of the Willow creek reclaimed area. The inspection focused on evaluating the vegetation required to control erosion for reclaimed areas slated for an alternative postmining land use. The College of Eastern Utah has expressed an interest in the buildings and a portion of Plateau Mining Corporation's property to be used as a training facility. The Utah Board of Regents is scheduled to review the proposed purchase agreement between the College of Eastern Utah and Plateau Mining Corporation on April 21st of 2006. Once the agreement is approved, the Company will submit an application to the Division for phase III bond release. Public notification will begin on Thursday, April 11, 2006.

Inspector's Signature: _____

Date Wednesday, April 12, 2006

Joe Helfrich, Environmental Scientist III

Inspector ID Number: 1

Note: This inspection report does not constitute an affidavit of compliance with the regulatory program of the Division of Oil, Gas and Mining.

1594 West North Temple, Suite 1210, PO Box 145801, Salt Lake City, UT 84114-5801
telephone (801) 538-5340 • facsimile (801) 359-3940 • TTY (801) 538-7458 • www.ogm.utah.gov

REVIEW OF PERMIT, PERFORMANCE STANDARDS, PERMIT CONDITION REQUIREMENTS

1. Substantiate the elements on this inspection by checking the appropriate performance standard.
 - a. For COMPLETE inspections provide narrative justification for any elements not fully inspected unless element is not appropriate to the site, in which case check Not Applicable.
 - b. For PARTIAL inspections check only the elements evaluated.
2. Document any noncompliance situation by reference the NOV issued at the appropriate performance standard listed below.
3. Reference any narratives written in conjunction with this inspection at the appropriate performance standard listed below.
4. Provide a brief status report for all pending enforcement actions, permit conditions, Division Orders, and amendments.

	Evaluated	Not Applicable	Comment	Enforcement
1. Permits, Change, Transfer, Renewal, Sale	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2. Signs and Markers	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3. Topsoil	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.a Hydrologic Balance: Diversions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.b Hydrologic Balance: Sediment Ponds and Impoundments	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.c Hydrologic Balance: Other Sediment Control Measures	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.d Hydrologic Balance: Water Monitoring	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.e Hydrologic Balance: Effluent Limitations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Explosives	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Disposal of Excess Spoil, Fills, Benches	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Coal Mine Waste, Refuse Piles, Impoundments	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Noncoal Waste	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Protection of Fish, Wildlife and Related Environmental Issues	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Slides and Other Damage	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. Contemporaneous Reclamation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Backfilling And Grading	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
13. Revegetation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
14. Subsidence Control	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. Cessation of Operations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16.a Roads: Construction, Maintenance, Surfacing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16.b Roads: Drainage Controls	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17. Other Transportation Facilities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18. Support Facilities, Utility Installations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19. AVS Check	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20. Air Quality Permit	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
21. Bonding and Insurance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22. Other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

1. Permits, Change, Transfer, Renewal, Sale

Phase 1 bond release of the Schoolhouse Refuse site (45.6 acres) and Phase III bond release of the Price River Water Improvement District (PRWID), 46.2 acres has been reviewed under Task ID #2424. The information was previously reviewed under Task ID #2344. There are 1.2 acres in Barn Canyon that were not disturbed.

2. Signs and Markers

Signs with the required information were posted at the entrances to the reclaimed areas.

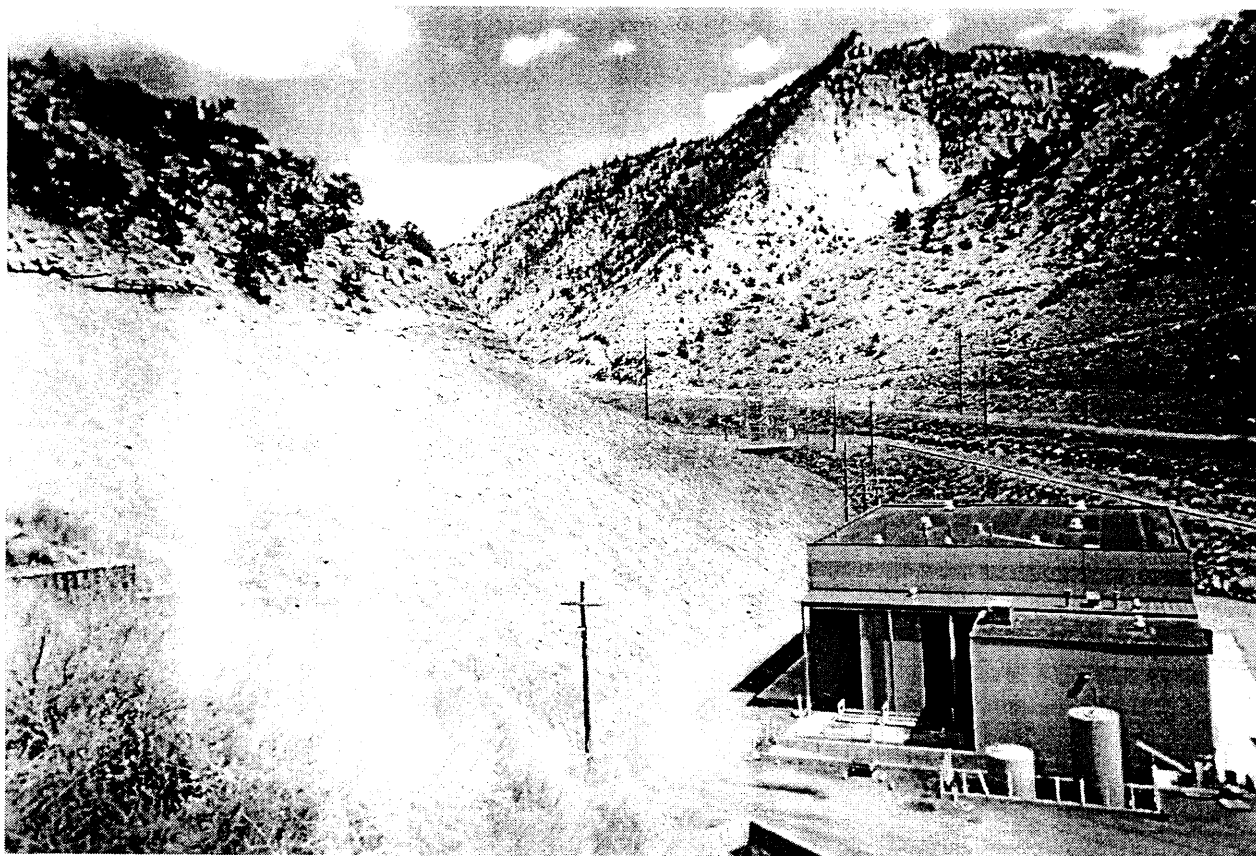
12. Backfilling And Grading

Final reclamation efforts are underway at the rail loadout facility. At the time of this inspection, a trackhoe with a pneumatic hammer attachment was observed demolishing the cement pad. Photographs were taken.

13. Revegetation

The slopes behind the shop and warehouse were evaluated for stability and vegetative cover required to control erosion. The area approximately 20' wide x 50' long that had shown some minor soil movement along the surface has remained stable since it was first noted on a previous inspection dated January 26, 2005. Additional seeding is recommended for this area in conjunction with the next precipitation event. The entire area was reclaimed, surface roughened and seeded in 2004. Since that time, the slopes have been exposed to numerous precipitation events and two seasons of snow melt exhibiting very minor sediment deposition that remains at the toe of the slopes. This is due in part to the surface roughening and cover material along the 65% slopes. The slopes have been inspected on the average of once every two months since they have been reclaimed, indicating no signs of weakness, failure, or structural instability. Layne Jensen, professional engineer from the Earthfax Engineering consulting firm, has evaluated the slopes for stability as well. A copy of Mr. Jensen's findings will be included in the Phase III Bond Release application. Estimates of 40% rock, and 18% vegetative cover at this point in time appear to be more than adequate to control erosion. The sediment yield calculations for the reclaimed slopes indicate that the reclaimed areas can meet effluent limitations. However, the permittee has opted to retain the sediment pond for additional sediment control. Photographs were taken.

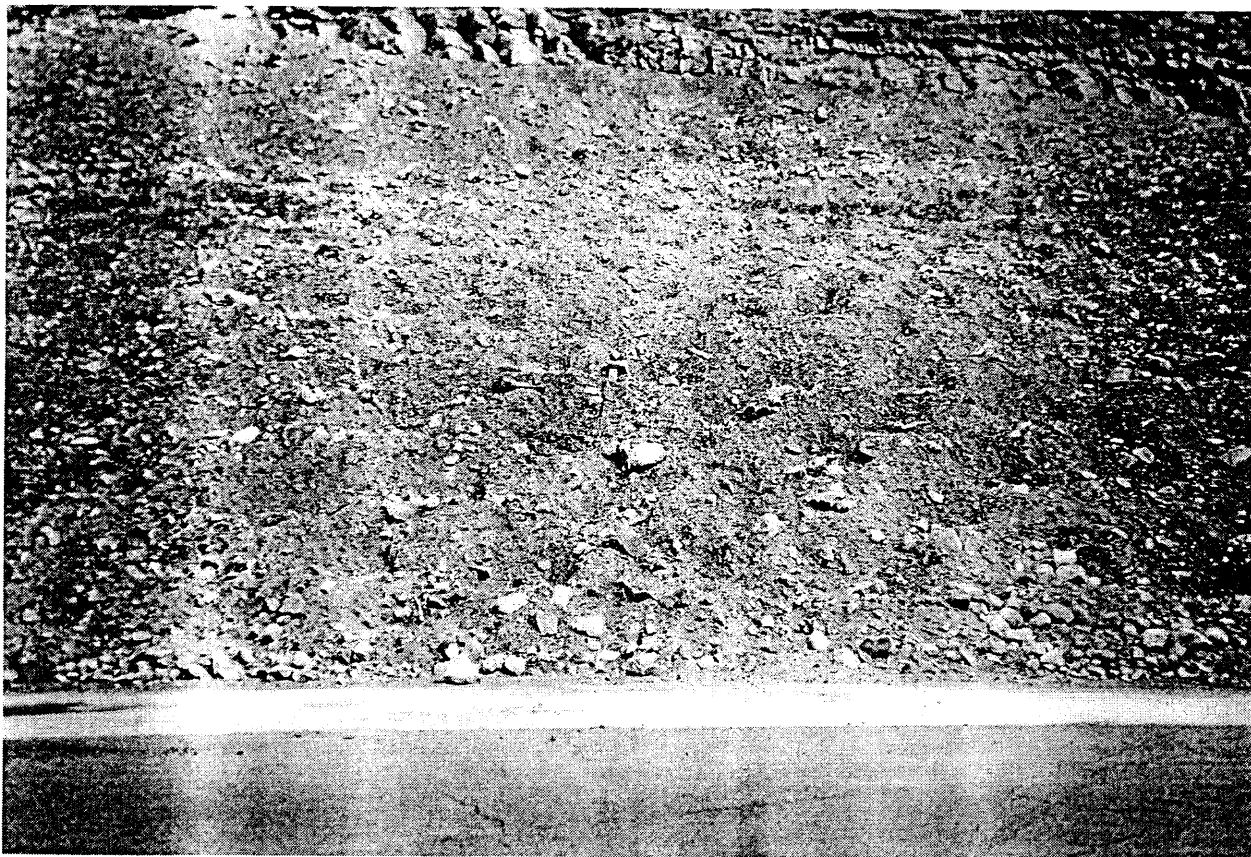
PHOTOGRAPHS



Portal Area Reclamation

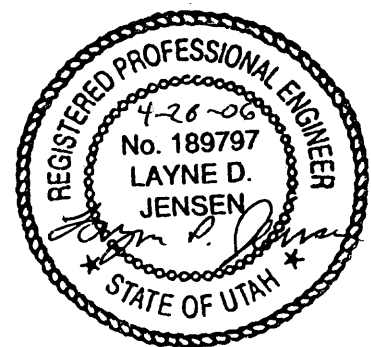


View of reclaimed slope from top of slope. Note the vegetation in the gouges that is not seen very well when looking up from the bottom of the slope. Vegetation is mostly grasses.



Erosional area, note that very little sediment actually reached to toe of the slope

SEDIMENT YIELD CALCULATIONS



Portal Area Fill Slope Sediment Yield Calculations

The same methodology described in Appendix H-4 of Exhibit 13 will be used for these calculations. While the calculations in Appendix H-4 apply to the entire site this calculation will only apply to the portal area fill slope.

Of the four factors identified in Appendix H-4 only two will change, the length-steepness factor (LS) and the Erosion Control Factor (LM). The Rainfall factor ($R=11$) and the soil erodibility factor ($K=0.13$ Pre-mining and post reclamation) will not change.

Three conditions will be evaluated.

- 1) Pre-mining (i.e. before the Willow Creek mine was built)
- 2) Current (i.e. April 2006)
- 3) long term post reclamation (After vegetation is established)

Length - Steepness Factor

- Pre-mining

The premining condition will be evaluated based on the adjacent undisturbed slopes immediately above the portal area.

The slopes adjacent to the portal have slopes between 56% and 90% pre-disturbance slopes flattened out to approx. 10% near Willow Creek. Although flatter near Willow Creek the portal area is in an area where the slopes were likely still fairly steep. Since Actual pre-disturbance topography is not available I will assume an Average slope of 60%

The slope length is the distance from the ridge to a channel or something like a depression or flat area that stops the runoff. With no pre-disturbance topography I will assume the pre-mining and long-term post reclamation slope length to be the same $L=450'$

$$LS = \left[\frac{(65.41(60))^2}{(60^2 + 10,000)} + \frac{4.56(60)}{\sqrt{(60^2 + 10,000)}} + 0.065 \right] \left(\frac{450}{72.6} \right)^{0.5} = 49.1$$

LS (continued)

- Current

The slope of the fill slope ranges between 50% and 83% with the 83% slope only a small area at the top of the slope. The average slope will be assumed to be 60%.

The majority of the fill slope has been gauged, measuring from the same point used for the pre-mining calculation the slope length is approx. 280'. This represents the distance from the ridge to the start of the gauges. Distance between gauges is about 10'.

$$LS = \left[\frac{(65.41)(60)^2}{(60)^2 + 10,000} + \frac{4.56(60)}{\sqrt{(60)^2 + 10,000}} + 0.065 \right] \left(\frac{280}{72.6} \right)^{0.5} = 38.7$$

- Long term Post reclamation.

The slope is the same as current conditions $S = 60\%$

The length is the same as for pre-mining $L = 450$

$$LS = \left[\frac{(65.41)(60)^2}{(60)^2 + 10,000} + \frac{4.56(60)}{\sqrt{(60)^2 + 10,000}} + 0.065 \right] \left(\frac{450}{72.6} \right)^{0.5} = 49.1$$

Erosion Control Factor

- Current.

The erosion control factor for the current condition is a function of plant cover density. This required an estimate of the current cover density. Unfortunately, in early April vegetation has not started to grow and dried grass or forbs are the only evidence of vegetation. Thus, a cover density could only be estimated using the dried remnants of grasses and forbs. I did my best to estimate cover density using guidance provided by Priscilla Burton of the DOGM. However, I have no formal training in estimating cover density. I estimated the cover density with Joe Helfrich of the DOGM.

Erosion Control Factor (cont.)

Joe and I estimated rock cover density between 25-75% with an average of 40%. We estimated vegetative cover between 10 and 25% with an average at 17.5%. After looking at vegetation studies I think our estimate is high. The Average cover density is more likely 10% with nearly everything we could see being grasses with no tall weeds and some forbs just beginning to grow.

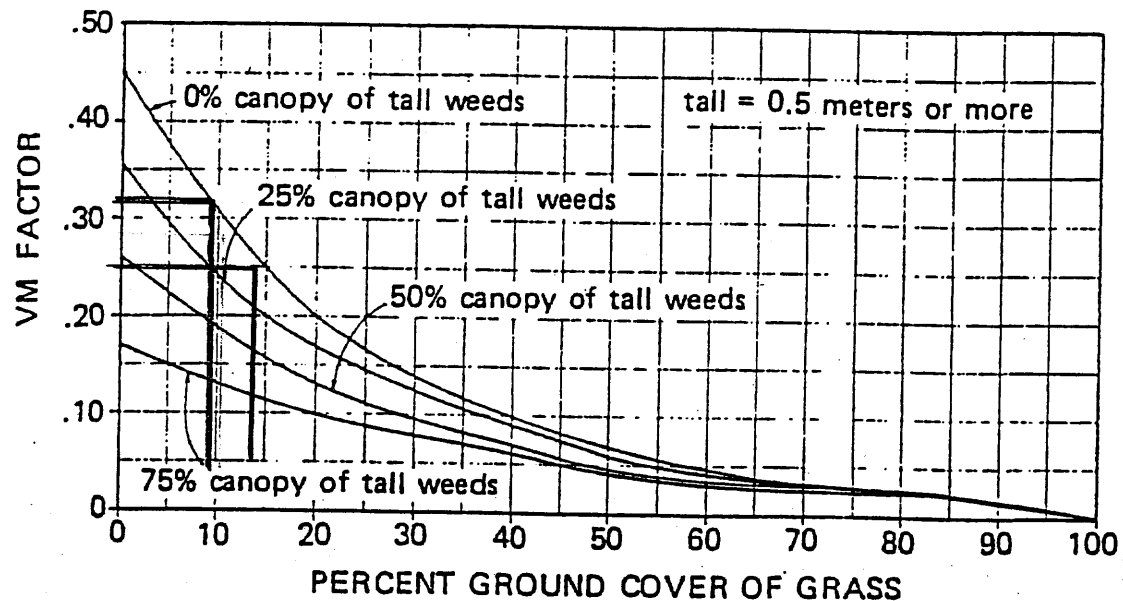


Figure 7. Relationship between grass density and VM factor.

$$VM = 0.32$$

- Long-term Post Reclamation.

Same as long-term Post Reclamation in Appendix H-4

$$VM = 0.24$$

Erosion Control Factor (cont.)- Pre-mining

I will estimate the pre-mining Erosion control factor based on the vegetation cover data presented in Exhibit 6 Supplemental Tables of Vegetation sampling data table 3.2-14 Pinon-Juniper Reference Area cover. I chose this vegetation data because adjacent undisturbed areas have a Pinon-Juniper vegetation type.

Total vegetative cover = 20.08 %
Grass cover % = 13.77 %
"Tall weeds" shrubs = 6.00 %

Using the Figure on the previous page.

$$VM = 0.25$$

The long-term post reclamation has a better VM due to the absence of Pinon Juniper trees. The Pinon-Juniper trees take water from other plants as well as preventing vegetation in the immediate vicinity of the tree. Thus reducing vegetation density. Because the reclaimed area will not have Pinon-Juniper trees there is a greater density of grasses. Thus, the reclaimed Area has a lower VM.

Calculation Summary

<u>Time Period</u>	<u>R</u>	<u>K</u>	<u>LS</u>	<u>VM</u>	<u>A</u> <u>(tons/Acre/yr)</u>
Pre-Mining	11	0.18	49.1	0.25	24.3
Current	11	0.18	38.7	0.32	24.5
Long-term Post-red.	11	0.18	49.1	0.24	23.3

EXHIBIT 23

**ATTACHMENT 5
OPERATIONAL STRUCTURES REMAINING AS
PART OF THE INDUSTRIAL POSTMINING LAND USE**

ATTACHMENT 5

Operational Structures Remaining as Part of the Industrial Postmining Land Use

The purpose of this attachment is to demonstrate that the ditches, culverts and sedimentation pond left in place to support the postmining industrial land use are adequately designed.

Table 1 identifies the ditches and culverts that have been left in place in the industrial land use area. The ditch and culvert designations in the table correspond to the ditches and culverts found on Maps 21A - AB through 21D - AB. The drainage patterns established when the mine was operational have changed very little in the industrial area. The reclamation of the fan pad and portal area has reduced the runoff potential from those areas. Drainage from other areas is essentially unchanged from when the mine was operational. The adequacy of the drainage system was demonstrated when the mine was in operation. The calculations verifying the capacity and stability of the ditches and culverts are in Appendices B-1 and B-2 of Exhibit 13. The ditches and culverts have been demonstrated to be able to handle at least the 10-year 6-hour storm event. Some of the ditches and culverts have been demonstrated to be able to handle the 10-year 24-hour storm event.

Sedimentation Pond 001 has been left in place to treat the runoff generated by the industrial land use area. This pond is now a permanent impoundment. The pond has the same purpose as when the mine was operational. Namely, treating runoff from the mine/industrial area prior to discharge to Willow Creek. Sedimentation Pond 001 was built to handle a mine discharge of 0.89 acre-feet per day and a 10-year 24-hour storm event of 1.8 inches which produced a total storm volume of 3.36 acre-feet. Pond 001 has a capacity of 11.5 acre-feet (see Exhibit 13 Appendix C). Given that a storm of 1.8 inches produces 3.36 acre-feet, a storm three times that size (5.4 inches) would still not make the pond spill. Hence, it is very unlikely that the pond will ever discharge to Willow Creek. Given that there will likely never be a discharge, effluent water quality will not be an issue. However, Pond 001 successfully treated runoff when the mine was operational and no changes to the pond have been made that would diminish the ponds ability to remove excess sediment. Although unlikely to ever be used, the primary and emergency spillways have been verified as being able to safely discharge the 25-year 6-hour storm event. Calculations regarding Sediment Pond 001 can be found in Exhibit 13 Appendix C.

ATTACHMENT 5 TABLE 1
INDUSTRIAL POSTMINING DRAINAGE STRUCTURES
10-YEAR 6-HOUR OR 10-YEAR 24-HOUR STORM EVENT
(PAGE 1 of 5)

Diversion Ditch	Design Flow (cfs) ^(a)	Minimum Existing Conditions						Calculation Results			Required Channel Depth (ft) ^(a)	Freeboard (ft) ^(a)
		Bottom Width (ft)	Side Slopes (ft)	Max. Bottom Slope (%)	Min. Bottom Slope (%)	Channel Depth (ft)	Riprap D ₅₀ (in)	Max. Velocity (ft/s)	Max. Flow Depth (ft)			
DD-1	0.46 *	2	1.5:1	1	0.5	1	-	1.59	0.31	0.81	0.5	
DD-5A	2.9 *	4.5	2:1	11.8	3.6	2	11	3.34	0.24	0.74	0.5	
DD-5B	3.52 *	2.5	1:1	18	2.4	2	6	4.498	0.40	0.90	0.5	
DD-5C	4.06 *	4	1.5:1	13.3	2	2.5	9	4.14	0.35	0.85	0.5	
DD-5D	7.72 *	3	1.5:1	1.1	0.4	1.5	-	3.30	0.92	1.42	0.5	
DD-5E	8.6 *	5	1:1	1.1	0.6	2	-	3.01	0.62	1.12	0.5	
DD-5F	32.20 *	4	1:1	10	3.3	3	concrete	13.48	0.73	1.23	0.5	
DD-6	0.39	2	1:1	1	0.5	1.5	-	1.26	0.18	0.68	0.5	
DD-7A	6.52	8	vertical	2	0.5	2	-	2.88	0.43	0.93	0.5	
DD-7B	6.82	2	1.5:1 1:1	1	0.5	2	-	3.11	0.90	1.4	0.5	
DD-7C	11.02	4.5	1:1	1.5	1.25	3	15	3.36	0.67	1.17	0.5	
DD-8*	0.3	-	1:1	33.3	11.8	2.5	-	4.85	0.30	0.8	0.5	
DD-9	3.10	3	0.75:1	11.3	5.6	2	-	4.47	0.18	0.68	0.5	
DD-10	0.57	-	1:1 8:1	5.6	0.5	1	-	2.60	0.35	0.85	0.5	
DD-11	0.41	1	2:1	4	1	1	-	2.28	0.21	0.71	0.5	

Notes: The ditches described above represent the section of ditch with the least capacity to handle runoff. It does not indicate the ditch configuration everywhere.
DD designates ditches that handle drainage from the disturbed area.

(a) According to Barfield et al., (1994) a freeboard of 0.2* (flow depth) or 0.5', whichever is greater should be an adequate freeboard.
* A 24" culvert is laid in the ditch.

(b) Unless noted by a * symbol the design flow is for a 10-year 6-hour storm event.

ATTACHMENT 5 TABLE 1
INDUSTRIAL POSTMINING DRAINAGE STRUCTURES
10-YEAR 6-HOUR OR 10-YEAR 24-HOUR STORM EVENT
(PAGE 2 of 5)

Diversion Ditch	Design Flow (cfs) ^(b)	Minimum Existing Conditions						Calculation Results			Required Channel Depth (ft) ^(a)	Freeboard (ft) ^(a)
		Bottom Width (ft)	Side Slopes (ft)	Max. Bottom Slope (%)	Min. Bottom Slope (%)	Channel Depth (ft)	Riprap D ₅₀ (in)	Max. Velocity (ft/s)	Max. Flow Depth (ft)			
DD-12A	0.30	1.75	2:1	6.1	2.7	0.75	-	2.07	0.10	0.6	0.5	
DD-12B	1.85	4	1:1	4	4	2	-	2.79	0.16	0.66	0.5	
DD-13	0.21	2	1:1	7.4	4.8	2	-	1.88	0.06	0.56	0.5	
DD-14	0.43	2	2:1	3.7	1.2	1	-	1.93	0.14	0.64	0.5	
DD-15A	0.08	-	1:1 6:1	7.4	4	1	-	1.87	0.12	0.62	0.5	
DD-15B	0.27	1.5	2:1	7.4	2.5	1.25	-	2.21	0.10	0.6	0.5	
DD-16	0.44	1	2:1 4:1	10	3.8	1	-	3.04	0.14	0.64	0.5	
DD-17	0.51	1.5	2:1	12.5	2.2	1	-	3.28	0.15	0.65	0.5	
DD-19	0.25	5.5	1:1	43	43	2.5	5	1.69	0.03	0.53	0.5	
DD-20	36.87 *	8.5	2:1	57	8	2	15	9.6	0.67	1.17	0.5	
DD-21A	0.3 *	-	2:1	16.7	3.3	1.25	-	3.97	0.53	1.03	0.5	
DD-21B	0.28 *	0.5	1.5:1	5.7	1.4	1	-	2.97	0.25	0.75	0.5	
DD-25	0.07 *	-	1:1	4	4	1	-	1.71	80.20	0.70	0.5	
DD-26	0.65 *	4	1:1	50	28.5	1	10	2.68	0.07	0.57	0.5	
DD-40B	2.49	-	3.3:1	8	1.6	0.75	4	3.15	0.24	0.74	0.5	

Notes: The ditches described above represent the section of ditch with the least capacity to handle runoff. It does not indicate the ditch configuration everywhere. DD designates ditches that handle drainage from the disturbed area.

- (a) According to Barfield et al., (1994) a freeboard of 0.2* (flow depth) or 0.5', whichever is greater should be an adequate freeboard.
(b) Unless noted by a * symbol the design flow is for a 10-year 6-hour storm event.

ATTACHMENT 5 TABLE 1
INDUSTRIAL POSTMINING DRAINAGE STRUCTURES
10-YEAR 24-HOUR STORM EVENT
(PAGE 3 of 5)

Diversion Ditch	10yr-24hr Design Flow (cfs)	Minimum Existing Conditions						Calculation Results		Required Channel Depth (ft) ^(a)	Freeboard (ft) ^(d)
		Bottom Width (ft)	Side Slopes (ft)	Max. Bottom Slope (%)	Min. Bottom Slope (%)	Channel Depth (ft)	Riprap D ₅₀ (in)	Max. Velocity (ft/s)	Max. Flow Depth (ft)		
UD-1A	7.28	-	1:1	6.7	1	4	6	5.39	1.59	2.09	0.50
UD-1B	7.28	-	0.9:1	25	8.7	5	9	7.18	1.09	1.59	0.50
UD-1C	7.28	4	2:1	18.8	3	4	14	5.30	0.49	0.99	0.50
UD-1D	64.9	4	2.5:1	5	1	4	14	7.99	2.52	3.02	0.50
UD-1E	64.9	9	1.5:1	33	1.6	3.25	14	10.36	1.25	1.75	0.50
UD-1F ^(a)	64.9	10	2:1	300	1.6	2.5	36	14.65	1.30	1.80	0.50
UD-2	57.61	4	2.5:1	20	11.1	2.5	14	10.74	1.36	1.86	0.50
UD-3	11.96	6.5	1:1	16.7	5.4	3	12	5.35	0.41	0.91	0.50
UD-7B	3.91	7	1:1	11.8	5	4.5	15	3.11	0.21	0.71	0.50
UD-8	4.76	2.5	1:1	4	0.5	2	-	4.45	0.69	1.19	0.50
UD-9	1.59	2.3	1.5:1	10	2.6	8	-	4.23	0.24	0.74	0.50
UD-10	1.35	3	1:1	6.7	1.8	3	-	3.20	0.20	0.70	0.50
UD-11	29.74	35	1.5:1	16	6.7	5.5	15	4.02	0.25	0.75	0.50
UD-12	0.39	1	1:1 4:1	3.7	2.1	1	-	2.34	0.18	0.68	0.50
UD-13	0.39	3.5	0.75:1	25	5.7	2.5	5	2.14	0.07	0.57	0.50

Notes: The ditches described above represent the section of ditch with the least capacity to handle runoff. It does not indicate the ditch configuration everywhere. UD designates ditches that divert runoff from undisturbed areas around the disturbed area.

- (a) According to Barfield et al., (1994) a freeboard of 0.2 (flow depth) or 0.5', whichever is greater should be an adequate freeboard
(d) See attached RB&G Engineering Report

ATTACHMENT 5 TABLE 1
INDUSTRIAL POSTMINING DRAINAGE STRUCTURES
DISTURBED DRAINAGE - CULVERTS
(PAGE 4 of 5)

Culvert	Existing Pipe Diameter (in)	Inlet Type	Pipe Slope (%)	Allowable HW/D ^(e)	Inlet Control Capacity (cfs)	Design Discharge (cfs) ^(g)	Minimum Allowable Culvert Size (in)	Design Status
DC-1	24"	Projecting	8	1.25	15	0.28	6	OK
DC-4	24"	Projecting	1	1.25	15	3.52 ^(f)	15	OK
DC-5	24"	Mitered	12	1.25	15.5	3.92 ^(f)	15	OK
DC-6	24"	Mitered	27	1.25	15.5	0.57	6	OK
DC-7	24"	Mitered	49	1.25	15.5	0.87	12	OK
DC-9	24"	Mitered	40	1.25	15.5	3.1	15	OK
DC-10	24"	Projecting	1.7	1.75	20	9.92	18	OK
DC-11	24"	Mitered	40	1.25	15.5	0.57	6	OK
DC-12	24"	Projecting	2.1	1.67	19	5.51	15	OK
DC-13	24"	Projecting	2.1	1.67	19	5.51	15	OK
DC-14	24"	Mitered	.43	1.25	15.5	0.70	12	OK
DC-15	24"	Projecting	2.1	1.25	15	1.50	12	OK
DC-16	24"	Mitered	26.7	1.25	15.5	1.85	12	OK
DC-17	24"	Projecting	3.8	1.25	15	2.06	12	OK
DC-18	48"	Projecting	3.3	1.125	78	29.71 ^(f)	33	OK
DC-19	24"	Projecting	4	1.25	15	0.64	6	OK
DC-28	18"	Projecting	8.3	1	5.6	2.49 ^(f)	15	OK

Note: DC designates culverts that handle runoff from disturbed areas

- (e) HW/D = Ratio of the maximum headwater depth and the culvert diameter
(f) Designates a 10-year 24-hour storm event.
(g) Discharge is for the 10-year 6-hour storm event unless otherwise noted.

ATTACHMENT 5 TABLE 1
INDUSTRIAL POSTMINING DRAINAGE STRUCTURES
UNDISTURBED DRAINAGE - CULVERTS
(PAGE 5 of 5)

Culvert	Existing Pipe Diameter (in)	Inlet Type	Pipe Slope (%)	HW/D	Inlet Control Capacity (cfs)	Design Discharge (cfs) ^(e)	Minimum Allowable Culvert Size (in)	Design Status
UC-1	30"	Projecting	35	1.2	25	11.96	24	OK
UC-2	48"	Projecting	N/A	1.125	78	11.17	24	OK
Second Section of UC-2 after manhole	60"	in a manhole	6.5	N/A since 48" cnp feeding into it	>100	11.17	24	OK
UC-3	24"	Projecting	28	1.25	15	4.76	18	OK
UC-4	24"	Projecting	21.6	1.25	15	2.94	12	OK
UC-5	24"	Projecting	12.2	1.25	15	2.94	12	OK
UC-6	60"	Mitered	13.9	1.1	138	29.74	33	OK
UC-7	96"	Mitered	N/A	>2	840	815 ⁽ⁱ⁾	96	OK

Note: UC designates culverts that divert runoff from undisturbed areas around the disturbed area.

(g) Discharge is for a 10-year 24-hour storm event unless otherwise noted.

(i) For the 100-yr 6-hr storm event as calculated by TerraMatrix, see Exhibit 14 calculations

EXHIBIT 23

ATTACHMENT 6

**CEU LETTER OUTLINING CEU'S INTENDED USE OF
THE FACILITIES**

AND

AGREEMENT FOR PURCHASE AND SALE CEU/PMC



WESTERN ENERGY TRAINING CENTER
P.O. Box 300 – Helper, UT – (435) 613.5500
www.westernenergytraining.org

April 20, 2006

Dennis N. Ware
Controller and Administrative Assistant
Plateau Mining Corporation
P.O. Box 30
Helper, UT 84526

Re: Purchase of Willow Creek Property by CEU

Dennis:

The purpose of this letter is to confirm in writing the intentions of the Western Energy Training Center, under the direction of the College of Eastern Utah (CEU), has for Plateau Mining Corporation's land. As you are aware, CEU was awarded over \$2.7 million by the Department of Labor as part of the President's High Growth Job Initiative to create an energy training center. In addition, the Utah legislature appropriated \$1.1 million to make it possible for CEU to buy the 270 acres with the three buildings and other structures, as well as 40 water shares. The plan is start classes as soon as July 2006 and to utilize the property to the full extent possible to create a highly diversified all-energy training center.

We will be teaching existing workers and new students in the myriad of safety courses required under state and federal law. We will also be teaching dozens and dozens of courses in specialty areas that will relate to coal, oil/gas, utilities, transportation, services, and other things. A great deal of the training will take place in the buildings. We will utilize the office space, create many classrooms, and set up workshops, technical areas, and mechanic/repair locations. Furthermore, we will be setting up outdoor training pads in suitable locations around the property. For instance, well training sites will be located in different lay down areas. We will recreate instruments, pipes, rigs, pumps, compressors, and other typical oil/gas training areas for the hands-on learning of the students. We will be teaching heavy equipment to some extent and mine related activities (mine rescue, equipment, etc.) that will need to be spaced out over the property for safety. We will also be able to teach reclamation by studying on-site locations. The power companies, as well, are anxious to set up staging areas so students can be training on some of their industry-specific equipment. The key is that we will have many kinds of training inside the buildings and outside that will be scattered in a safe and effective manner. The land around the buildings that is part of the purchase will be an important component to the entire program. The students will have the great benefit of being in the middle of the energy world, sometimes in the cold or heat with the bugs, and other times in nice facilities. Either way, the center will be a great benefit to Castle Country and the State as a whole.

Respectfully,

A handwritten signature in black ink, appearing to read 'Steve Burge', written in a cursive, flowing style.

Steve Burge
Director

Purchase and Sale Agreement

(including Exhibits A through J)

Plateau Mining Corporation, Seller,

College of Eastern Utah, Purchaser

May 3, 2006

AGREEMENT FOR PURCHASE AND SALE

THIS AGREEMENT FOR PURCHASE AND SALE (this agreement and all Exhibits hereto are referred to as the "Agreement") is made and entered into this 3rd day of May 2006, between Plateau Mining Corporation, a Delaware corporation, with an address at P. O. Box 30, Helper, Utah 84526 ("Seller") and the College of Eastern Utah, a public institution of higher education with an address at 451 East 400 North, Price, Utah, 84501 ("Purchaser").

RECITALS

- A. Seller is the owner of certain assets associated with the former mining operation commonly referred to as the Willow Creek Mine located in Carbon County, Utah.
- B. Seller desires to sell to Purchaser, and Purchaser desires to purchase from Seller, those assets, all subject to the terms and conditions of this Agreement.

NOW THEREFORE, in consideration of the mutual covenants, obligations and agreements contained herein, and for other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the parties hereby agree as follows:

DEFINITIONS

In this Agreement, the following capitalized terms and other defined terms described herein shall have the meaning set forth or cross-referenced below:

"Administration Office Building" means the office building on the Real Property.

"Agreement" means this contract for the sale and purchase of assets titled Agreement For Purchase And Sale, including all Exhibits.

"Assignment and Assumption Agreement" means the agreement set forth in Exhibit H transferring the Water Facilities to Purchaser.

"Bill of Sale" means the document set forth in Exhibit F.

"Closing" means the closing of this transaction which is described in more detail in Sections 5, 16 and 17 of this Agreement.

"Closing Date" means the date set forth in Section 5 of this Agreement.

"DOGM" means the State of Utah, Division of Oil, Gas and Mining.

"Donated Assets" means all items of personal property that are not included in the Purchased Assets or the Retained Assets, including, without limitation, such items as office equipment, office furniture, maintenance and warehouse equipment, supplies, fuel and tools, office supplies and appliances, all of which are generally identified in Exhibit C.

“Exhibits” means those documents referenced in Exhibits A through J that are attached to, and incorporated in, the Agreement.

“Files and Records” means all records, data, utility related supply and use contracts necessary to maintain the Purchased Assets and Donated Assets, as well as historical maps and documents related to the Purchased Assets and Donated Assets.

“Forklifts” means the Gradall Forklift Model No. 534C-9 and Hyster forklift Model No. J50XM 28.

“Fuel Tank(s)” means the diesel fuel storage tank located on the Real Property.

“Hazardous Substances” means any hazardous, toxic, radioactive, or infectious substance, material or waste as defined, listed or regulated under any law applicable to the Willow Creek Mine pertaining to the protection of human health or the environment including, without limitation, petroleum oil and its fractions.

“Lease” means the document set forth in Exhibit D, whereby Seller leases certain property from Purchaser after the Closing.

“Party” or “Parties” means the Seller and the Purchaser and their successors, as parties to this Agreement.

“Permits” means all DOGM issued authorizations and permits, or other regulatory issued authorizations and permits, related to the past coal mining activities by Seller on the Real Property.

“Pre-closing Services” has the meaning given in Section 5(E).

“Purchase Price” has the meaning given in Section 9.

“Purchased Assets” means all the Seller’s rights, titles and interests in the Real Property, the Shares, the Water Facilities and the Files and Records,

“Purchaser” means the College of Eastern Utah, a State of Utah public institution of higher education, located in Price, Utah.

“Real Property” means the real property, including without limitation, all buildings and structures thereon, together with all associated fixtures, and also including the Water Facilities, owned by Seller as described in Exhibit A, together with all rights appurtenant thereto.

“Reclaimed Acres” means the land more particularly described in Exhibit E.

“Retained Assets” means those items of personal property specifically set forth in Exhibit B.

“Right of Way Agreement” means the agreement set forth in Exhibit I, allowing Seller limited access to the Real Property after Closing.

"Seller" means Plateau Mining Corporation, a Delaware corporation, with its corporate offices located in Helper, Utah with a mailing address of P. O. Box 30, Helper, Utah 84526.

"Shares" means the 40 water shares in the Price River Water Users Association represented by Certificate No. 6754.

"Warehouse" means one of the three buildings on the Real Property that can be used for storage.

"Water Facilities" means the raw and culinary water facilities associated with the Willow Creek Mine, together with a right-of-way for ingress to and egress from said water facilities as reserved in and subject to Special Warranty Deed dated effective April 26, 2005 between Plateau Mining Corporation, Grantor, and Price River Water Improvement District, Grantee, the same being recorded in Book 566, Page 243, Carbon County, Utah, to which record reference is made herein for all purposes.

1. SALE AND PURCHASE OF ASSETS. Pursuant to the terms of this Agreement, Seller hereby agrees and promises to sell to Purchaser, and Purchaser agrees and promises to buy from Seller the Purchased Assets. These Purchased Assets include the following:

A. The Real Property located in Carbon County, Utah as more particularly described in Exhibit A, which is attached hereto and incorporated herein by this reference. The Real Property shall include not only the land, but also structures, buildings, sedimentation ponds, propane tanks, roads, parking areas, and all fixtures, located thereon.

B. Originals and/or copies of all records, data and utility related supply and use contracts (to the extent such are assignable) in Seller's possession necessary to maintain and operate the Purchased Assets and Donated Assets for their intended and normal purposes, as well as originals and/or copies of any historical maps, documents or other records that Purchaser may reasonably request and which are related to the Purchased Assets and Donated Assets. All such records, data, contracts, historical maps and documents are collectively referred to as "Files and Records".

C. Seller's 40 shares of water in the Price River Water Users Association represented by certificate Number 6754 (the "Shares").

D. Seller's right, title and interest in and to the Water Facilities. Seller's interest in the Water Facilities will be transferred pursuant to an Assignment and Assumption Agreement in substantially the same form attached hereto as Exhibit H.

Notwithstanding anything to the contrary set forth in this Agreement, Purchaser has the exclusive option to purchase from Seller the Gradall Forklift, Serial No. 0344129 and Model No. 534C-9 for \$30,000 and the Hyster Forklift, Serial No. A216A01893T, Model No. J50XM-28 for \$15,000.00 (collectively referred to herein as the "Forklifts"). Such option to purchase must be exercised at any time prior to October 31, 2006, and if exercised would be transferred upon payment to Seller on October 31, 2006 by a Bill of Sale substantially in the same form as that attached as Exhibit F.

2. **RETAINED ASSETS.** Those items of personal property specifically identified in Exhibit B attached hereto and incorporated herein by this reference, shall remain the property of Seller. Except for (i) those items used in the office space leased by seller in Section 6 below, and (ii) the storage of cement as discussed in Section 6(A), these items shall be removed at Seller's cost from the Real Property within ninety (90) days after Closing. Any such items which are not removed within ninety (90) days after Closing shall become the property of the Purchaser, and Seller shall, if requested, execute and deliver to Purchaser a Bill of Sale for said items in substantially the same form as that attached hereto as Exhibit F.

Other than the Purchased Assets, Retained Assets, the Forklifts and Donated Assets, this Agreement does not include any other land, inventory, shares, rights, products, equipment, assets or supplies.

3. **TITLE APPROVAL.** With respect to the Forklifts, Shares and Water Facilities, Purchaser shall take all actions and conduct all diligence it deems necessary to satisfy itself with prior to Closing that Seller has good title and Purchaser has the ability to purchase such. With respect to the Real Property, Seller agrees to furnish to Purchaser at Seller's sole cost and expense, a title insurance policy issued in Purchaser's name for the full amount of the purchase price allocated to the Real Property. As soon as practicable after this Agreement is signed, Seller agrees to order and thereafter provide Purchaser, at Seller's sole cost and expense, a preliminary title report which shall include copies of any instruments referred to by the title insurance carrier as exceptions to the proposed title coverage. After delivery of that preliminary title report to Purchaser, Purchaser shall have 30 business days to examine the preliminary report. If title is defective, or if there is an exception or condition that will impair the Purchaser's intended use, as determined in Purchaser's sole discretion, Purchaser may either (i) cancel this Agreement, or (ii) ask Seller in writing to cure any such defects, exceptions or condition which writing shall specify the defects, exceptions or conditions. If Purchaser elects option (ii) above, Seller shall have the sole and exclusive discretion as to whether and to what extent, if any, it will undertake to cure the defects, exceptions or condition as identified in Purchaser's notice. Seller shall have no obligation to make any effort to or to actually cure such defects, exceptions or condition. If Seller has not cured said defects, exceptions or condition within 15 business days after receipt of notice, then Purchaser shall have 15 additional business days within which to elect either (x) to cancel this Agreement, or (y) to proceed with this Agreement subject to the defects, exceptions or condition, and thereby waiving any and all rights to bring any claim whatsoever in the future related to said defects, exceptions or condition. In said event, Purchaser shall notify Seller of its election of option (x) or (y) in writing. Failure to give timely written notice shall be deemed to be election of option (x) to cancel this Agreement. The remedies provided in this paragraph 3 are the sole and exclusive remedies of Purchaser for any matter related to a notice to Seller given pursuant to this paragraph 3. If Purchaser elects to terminate this Agreement pursuant to this paragraph 3, each party shall bear and be responsible for any and all costs or expenses it has incurred up to that date and related to the transactions contemplated by this Agreement. Thereafter there shall be no right or ability of any party to make claims related to or to seek specific performance under this Agreement.

4. **ENVIRONMENTAL WARRANTIES, INVESTIGATIONS AND INDEMNITY.** Seller, and with knowledge that Purchaser intends to rely upon the following warranties, represents and warrants that to the Seller's actual knowledge:

A. No Hazardous Substances have been disposed of, spilled, leaked or otherwise released by Seller on, under or from the properties included in the Purchased Assets that has not been previously disclosed in writing to Purchaser.

B. No Hazardous Substances have been disposed of, spilled, leaked or otherwise released by Seller on, under or from property immediately adjacent to, in the immediate vicinity of, or that would naturally drain onto the properties included in the Purchased Assets.

C. No waste (including without limitation garbage and refuse) have been disposed of by Seller on the properties included in the Purchased Assets, except in a manner that is in compliance with all applicable laws, rules, and regulations.

D. No governmental authority has (a) investigated the Real Property for Hazardous Substances still remaining on the Real Property, (b) has informed Seller that there is Hazardous Substances on the Real Property, and/or (c) has ordered Seller to clean up Hazardous Substances from the Real Property that has not been fully resolved under existing environmental or permitting regulations or laws.

E. There are no below-ground storage tanks on the Real Property.

Should Seller learn prior to Closing that any of the above warranties are no longer true, Seller shall immediately inform Purchaser. The environmental warranties shall survive the Closing.

Subject to the terms herein, Seller authorizes Purchaser to enter upon the Real Property as needed to investigate any and all environmental conditions of every kind or character it may wish to investigate. If Purchaser discovers, before the date of Closing (as defined below), that any of the warranties of the preceding paragraphs are untrue, Purchaser may, as its sole and exclusive remedy, cancel this Agreement. Seller shall have no obligation to attempt to or to actually remedy any environmental conditions on the Property which Purchaser may determine exists.

Upon signing of this Agreement, and continuing thereafter until Closing, Purchaser and its agents shall have the right to enter upon the Real Property to perform such soil, engineering, geological, environmental and other tests and inspections as Purchaser shall deem appropriate to determine the environmental condition of the Real Property, the condition of the fixtures and any Personal Property, the condition of the Water Facilities, the suitability of the Real Property for Purchaser's intended use, or any other matter it may deem necessary or appropriate. Purchaser shall give Seller reasonable prior notice of such tests and inspections and covenants and warrants that no alteration or damage to the Real Property, Forklifts or Water Facilities will occur therefrom. Purchaser may consult or retain civil engineers, contractors, soils and geologic engineers, architects, governmental agencies, financial institutions and other consultants to determine the physical condition of the Real Property, Forklifts and Water Facilities. Seller shall reasonably cooperate with Purchaser in connection with Purchaser's investigation of the feasibility of the Real Property, Forklifts and Water Facilities for Purchaser's intended use, except that Seller shall have no obligation to incur any cost or expense nor shall Seller have any liability to Purchaser for personal injury or property damage arising out of Purchaser's investigations or tests.

Any entry upon the Real Property for test or investigation by Purchaser or its agents shall be at their sole risk, cost and expense. Purchaser shall indemnify, defend and hold harmless Seller (and any affiliated entity or persons) from any and all responsibility, liability or loss arising out of or resulting from entry and activities in connection with the Real Property by Purchaser or any of its contractors, subcontractors or agents. Such indemnification shall include, without limitation, any injuries, claims, damage to property, mechanic's and materialman's liens and costs, including attorney's fees incurred to pursue or defend any such claims. All costs of Purchaser's investigation and testing shall be the sole responsibility of Purchaser and it agrees to hold Seller free and harmless from any such costs or liabilities.

Seller shall allow Purchaser to use any of its reports, maps, engineering studies, geologic tests, environmental impact review reports or other reports for the Real Property and Water Facilities in determining the feasibility for Purchaser's intended use. Upon Closing, copies of any such reports, maps, studies or geologic tests shall be given to Purchaser, unless they are not necessary for or related to any future ownership of the Purchased Assets.

5. EFFECTIVE DATE, CLOSING, CONDUCT OF BUSINESS TO DATE OF CLOSING AND RISK OF LOSS.

A. Purchaser's obligation to purchase the Real Property, Shares, Water Facilities and Personal Property is subject to the determination by Purchaser that the such can be practically and lawfully used for its intended purpose as a location for its intended purposes, including: obtaining satisfactory zoning, satisfactory results from its environmental study, and approval by Purchaser of the conditions, covenants, restrictions or other matters which would prevent or unduly hinder Purchaser from making use of such for their intended purpose, and is conditioned upon approval by its governing boards, the College of Eastern Utah Board of Trustees and the Utah State Board of Regents and satisfactory results from its due diligence review.

B. The planned sale of the Purchased Assets by execution and delivery of the items specified in paragraphs 16 and 17 ("Closing") shall be completed at a closing to be held when all conditions to Closing are met, but on or before July 28, 2006 (the "Closing Date") subject to the terms and conditions set forth in Paragraph 8 of this Agreement; provided however, Closing may be postponed by written mutual agreement of both parties. If for any reason whatsoever the Closing does not take place on or before July 28, 2006, or in the event of a mutual postponement, on or before the mutually agreeable extended date of Closing, then, subject to the terms and conditions set forth in Paragraph 8 of this Agreement, either party may terminate this Agreement in its sole and exclusive discretion. In said event, each party shall bear and be responsible for any and all costs or expenses it has incurred up to that date and related to the transactions contemplated by this Agreement. Thereafter there shall be no right or ability of any party to make claims related to or to seek specific performance under this Agreement. The sale shall be effective as of the time of Closing. Seller shall take reasonable measures to maintain the Purchased Assets in its or their current condition until Closing is finalized, and shall not sell or transfer any of the Purchased Assets between now and the Closing Date or termination of this Agreement, whichever occurs first. By proceeding to Closing, Purchaser intends to and, at the time of Closing, shall be deemed to have accepted the Purchased Assets in a condition satisfactory to Purchaser in every respect.

C. The final execution, exchange and recording of documents, and the payment of funds as contemplated herein are planned to be completed at a Closing to be held at Professional Title Company of Price, Utah on the Closing Date. Closing shall be conducted pursuant to the terms of this Agreement.

D. Title and risk of loss to any of the Purchased Assets shall pass to Purchaser at Closing. Prior to Closing, Seller shall be responsible for, and after the date of Closing, Purchaser shall be responsible for, any loss, insurance, taxes, liability and all other incidents of ownership of all kinds to any of the Purchased Assets. Seller is not obligated to repair or replace any damage to or loss of any property or asset sold pursuant to this Agreement.

E. Commencing with the execution of this Agreement, and until the first to occur of (i) the Closing, or (ii) termination of this Agreement, Purchaser and its contractors may have access to the Real Property and the buildings thereon to perform inspections, showings, tours, work or services (all such inspections, showings, tours, work or services are referred to as "Pre-closing Services"), subject to the following conditions:

1. Any Pre-closing Services to be performed shall be presented to Dennis Ware as the Sellers representative for review and approval prior to commencement, which approval may be granted or refused in his sole and exclusive discretion.

2. Any Pre-closing Services shall be performed in a good and workmanlike manner, in accordance with all applicable laws and regulations, and by competent and qualified workers. All Pre-closing Services shall be paid for by Purchaser and shall be performed at the sole and exclusive direction, oversight, risk, cost and expense of Purchaser. Before commencing any Pre-closing Services, Purchaser and its contractors (whom purchaser will ensure has complied herewith) will fully and completely inspect the Real Property and the fixtures thereon, and such Pre-closing Services will be undertaken subject to all latent and patent defects, if any, in the Real Property and the fixtures thereon.

3. No Pre-closing Services shall be undertaken or commenced until Purchaser has obtained the insurance coverage and certificates and otherwise fully and completely complied with the related requirements as noted on Exhibit J.

4. Purchaser shall defend, indemnify and hold harmless Seller and its affiliates (and each of their employees) from and against any and all losses, claims, demands, liabilities, suits or actions (including reasonable expenses and attorneys' fees) for injuries to or the death of any person or persons, or for loss of or damage to the property of any person or persons, caused by or resulting from, directly or indirectly, (i) the acts or omissions of Purchaser, or any of Purchaser's contractors, employees, agents and suppliers, (ii) the presence on the Real Property of any person for any reason associated with Pre-Closing Services, or (iii) by reason or any other cause in connection with or related to the performance of any Pre-closing Services, whether caused by a negligent act or omission of Seller.

5. Compliance by Purchaser with the insurance requirements of this Agreement shall not limit or relieve Purchaser of the above obligations to indemnify, defend and hold harmless Seller and its affiliates.

6. Failure by Purchaser to abide by any provision of this Agreement shall allow Seller immediately to suspend the performance of all Pre-closing Services; provided however, Seller shall have no duty or obligation to ensure workplace safety or conditions in the performance of Pre-closing Services and Purchaser shall be solely responsible therefore.

7. If this Agreement is terminated for any reason and no Closing occurs, then Purchaser shall not be entitled to any reimbursement or refund for Pre-closing Services, and if requested by Seller, Purchaser shall complete any construction project commenced as part of Pre-closing Services and remove all debris and other materials placed on the Real Property or the facilities thereon.

F. Upon execution of this Agreement, Seller shall obtain an appraisal of the Real Property (which appraisal shall be provided to Purchaser), and the parties agree that any difference, if any, between the appraisal value of the Real Property and allocation of the Purchase Price towards the Real Property can be considered as a donation to the Purchaser.

G. Any items of personal property located on the Real Property that are not included in the Purchased Assets or in the Retained Assets shall be considered Donated Assets. The parties shall provide a general list all the Donated Assets in Exhibit C, and Seller shall transfer and convey the Donated Asset upon Closing pursuant to a Bill of Sale, in a form in accordance with the Bill of Sale set forth in Exhibit F, attached hereto and incorporated herein by this reference. The Parties can modify, by adding and deleting items of personal property to, the Donated Assets list upon mutual written agreement at any time up to and at the Closing.

6. LEASE TO SELLER. Following Closing, Seller shall have the option of leasing from Purchaser the Administrative Manager's office, the Accounting Supervisor's office and the Administrative Assistant's office located in the Administration Office Building for a period of up to twenty-four (24) months after Closing for a monthly rental charge of \$500.00. Should it elect to do so, the form of Lease shall be as attached hereto as Exhibit D. Further Seller and/or Seller's contractor may, for no additional cost:

A. Store cement, to be used for a reclamation project, in the Warehouse located upon the Real Property until such time as Purchaser requests removal of the cement from the Warehouse by giving Seller a minimum of sixty (60) days' prior written notice of such. If Purchaser requests removal of the cement from the Warehouse, Seller may store said cement under the protective awnings of the Warehouse and Administration Office Building;

B. Utilize the fire hydrant located south of the Administrative Office Building to fill water trucks for Seller's 2006 and 2007 reclamation project. Usage of such water shall be coordinated in advance with Purchaser and limited in amount to that which is reasonable and

necessary given the requirements necessary for Seller to perform ongoing reclamation, primarily for, but not limited to, the cementing of drill holes; and

C. Store other personal property identified in Exhibit B on the Real Property for a reasonable period of time or until such time as Purchaser requests removal of said property by giving Seller a minimum of sixty (60) days' prior written notice of such.

D. In the event Purchaser exercises its right to purchase the Forklifts, Seller will thereafter be able to use the Forklifts, on an as needed basis, in coordination with and upon prior approval of Purchaser, which approval can not be unreasonably be withheld. Use of the forklifts by Seller or its agents shall be at their own risk and Seller shall indemnify, defend and hold harmless Purchaser, its agents, faculty members, students, invitees and officers, from any and all responsibility, liability or loss arising out of or resulting from the use of, or activities in connection with, the forklifts.

E. Use of fuel from the Fuel Tank, notwithstanding anything to the contrary otherwise, shall be at the fair market value of the cost of the fuel. Use of any fuel from the Fuel Tanks by Seller or its agents shall be at their own risk and Seller shall indemnify, defend and hold harmless Purchaser, its agents, faculty members, students, invitees and officers, from any and all responsibility, liability or loss arising out of or resulting from the use of, or activities in connection with, the fuel.

7. SELLER'S OPERATION AFTER CLOSING. Following the Closing, Seller shall retain all of the obligations that it has at the time of Closing, or that is related to its prior operations on the Real Property and on lands other than the Real Property and owed to the Utah Division of Oil, Gas and Mining (DOGM) or any other state or federal regulatory agency under current environmental, mining or other regulations and laws. To the extent necessary to accomplish those obligations, Seller and its contractors shall have an ongoing right of access to, over and across portions of the Real Property, all in accordance with the Right of Way Agreement set forth in Exhibit I, and Seller shall endeavor to minimize the disturbance and inconvenience to Purchaser.

8. PERMITS AND BONDS, ACCESS, RECLAIMED ACRES.

A. Purchaser understands and Seller acknowledges that prior to and after Closing Seller generally retains certain reclamation and restoration obligations pertaining to the Purchased Assets pursuant to a permit No. C-007-038 issued by DOGM for activity on the Real Property related to past coal mining activity ("Permit"). The Parties agree that as a condition precedent to Closing, DOGM will, prior to or simultaneous with the Closing, (i) take all such actions and deliver all such documents as are necessary to waive and release Seller from all future Permit obligations related to the Purchased Assets (except as to the Reclaimed Acres), and (ii) return to Seller, and thereby release, all or the applicable portion, of any performance bond, letter of credit or other surety posted by the Seller to support the Permit obligations on all but the Reclaimed Acres. Seller and Purchaser shall cooperate in good faith to accomplish this result with DOGM, but both recognize and agree it may not be possible to achieve the result desired. If the conditions in paragraph 8(A)(i) and 8(A)(ii) cannot be met by DOGM on or before July 28, 2006, then in such event the parties may mutually agree to extend the date of the Closing. Absent such mutual agreement to extend

the date of this Closing, this Agreement may be terminated by either party after July 28, 2006, but only after the terminating party provides the other party with a written notice of the terminating party's intention to terminate the Agreement thirty (30) days after actual receipt of such written notice. During that 30 day period, if the conditions in paragraph 8(A)(i) and 8(A)(ii) are met, the Agreement can not be terminated and the Closing shall occur at a mutually agreeable time, no later than 5 business days after the end of the 30 day notice period.

B. Seller acknowledges that Purchaser has no intention of proceeding to Closing until all the preconditions to Closing as set forth in Paragraph 17 of this Agreement are met. However, in the event that the parties elect to proceed to Closing even though the conditions in paragraph 8(A)(i) and 8(A)(ii) will not be met by DOGM on or before Closing, then until such time as those conditions are met by DOGM, Purchaser agrees (1) that it will not disturb any portion of the Real Property conveyed at the Closing, or take any other actions, which might result in a notice of violation being written against the Permit, until such time as that portion of the Real Property is released from the Permit and the applicable portion of the bond is released, and (2) to indemnify, defend and hold harmless Seller from any costs related to repair or remedy of any situation created by Purchaser which has or may result in a notice of violation issued by DOGM under the Permit due to Purchaser's acts or omissions on the Real Property after Closing.

C. At the Closing, Purchaser and Seller shall execute and deliver the Right-Of-Way-Agreement substantially in the same form as Exhibit "I," which is attached hereto and incorporated herein by this reference. This Right-Of-Way-Agreement will allow Seller necessary access after Closing to the Reclaimed Acres (and depending on the parties exercise of its option to close prior to DOGM actions, possibly portions of the Real Property) and any property adjacent to the Real Property owned by Seller so as to allow Seller to comply with any legal obligations it has under the Permit. The rights granted to Seller pursuant to the Right-Of-Way-Agreement shall not be intended to limit or modify, and shall be in addition to, the obligations of Purchaser in Section 8(B).

D. The post mined land use has not yet been changed from wildlife habitat to industrial use by DOGM for those certain lands constituting a portion of the Real Property, consisting of approximately three (3.9) acres as more specifically set forth in Exhibit "E", which Exhibit is attached hereto and incorporated herein by this reference. These 3.9 acres are referred to herein as "the Reclaimed Acres." Both Seller and Purchaser acknowledge that the Reclaimed Acres are part of the Purchased Assets and upon the Closing will be sold, transferred, and conveyed from the Seller to the Purchaser. Seller and Purchaser shall cooperate in good faith to accomplish the objective of having DOGM change the Reclaimed Acres from wildlife habitat to industrial use as soon as reasonably possible. Seller and Purchaser shall also make good faith efforts to perform all acts necessary in a reasonable and diligent manner in order to have DOGM (1) take all actions necessary, to have the Seller's obligations in the Permit waived and released as to the Reclaimed Acres, and (2) release Seller from the applicable portion of any performance bond, letter of credit, or surety posted by Seller to support the Permit obligations on the Reclaimed Acres. Both Seller and Purchaser recognize and agree it may not be possible to achieve the desired post mining land use revision and Phase III Bond Release on the Reclaimed Acres before Closing. In such an

event, Purchaser shall be limited from accessing or using the Reclaimed Acres, except in cases of an emergency, and shall conduct its educational operations on the Real Property in such a manner as to avoid damaging or disturbing the Reclaimed Acres, until the post mining land use revision and Phase III Bond Release on the Reclaimed Acres is approved by DOGM. Seller agrees to comply with all permit and reclamation obligations of the Permit as related to the Real Property, specifically including the Reclaimed Acres, and will hold Purchaser harmless from any costs associated with any such permit obligations and reclamation expenses and will hold Purchaser harmless from any claim or litigation resulting from Seller's failure to comply with any permit or reclamation obligations as related to the Real Property, specifically including the Reclaimed Acres.

9. PURCHASE PRICE. The total consideration for the Purchased Assets shall be [REDACTED]
The Purchase Price for the assets sold pursuant to this Agreement is allocated as follows:

- A. The Real Property for the sum of [REDACTED] and [REDACTED]
- B. The Shares for the sum of [REDACTED]

10. INTENTIONALLY LEFT BLANK.

11. REPRESENTATIONS AND WARRANTIES OF SELLER. Seller hereby warrants, represents and guarantees to Purchaser as follows:

- A. Seller is the sole and exclusive owner of the Forklifts and the Shares and has the right to convey such to Purchaser as described in this Agreement.
- B. Seller is the sole and exclusive owner of the rights associated with the Water Facilities and has the right to assign such to Purchaser as described in this agreement.

C. That there are no liens, encumbrances, taxes or claims of any kind owing or claimed to be owing against the Purchased Assets, Forklifts or Donated Assets conveyed by this Agreement, except for normal assessments as are set forth in this Agreement.

D. Seller represents and warrants that it has not employed contractors, workmen or suppliers upon the Real Property and Water Facilities during the last six months in activities that would give rise to a mechanic's or supplier's lien upon the Real Property or if they have, all wages or charges have been paid in full or will be by the time of Closing.

E. That there are presently no judgments entered of record in the State of Utah, or any other state, against Seller, nor any other liens or claims by which any creditors of Seller could reach or attach the assets being transferred by this Agreement, other than as set forth herein.

F. That Seller, to the best of its knowledge and belief, is currently in material compliance with all federal, state and local regulations, ordinances or restrictions of any kind applicable to the Real Property and Water Facilities.

G. Corporate Standing. Seller is a corporation duly organized and validly existing under the laws of the State of Delaware; has corporate power to execute, deliver and carry out the terms and provisions of this Agreement, and to carry on its business as now being conducted; and as necessary is duly qualified to do business and is in good standing in the State of Utah.

H. Authorizations; Binding Agreements. The execution, delivery and performance of this Agreement by Seller and of the conveyances, assignments, agreements and other documents herein contemplated to be executed by Seller, have been duly authorized by all necessary corporate actions. This Agreement and the conveyances, assignments, agreements and other documents herein contemplated to be executed by Seller are or will be upon execution valid and binding agreements, duly enforceable upon Seller in accordance with their terms (subject, however, to the effects of bankruptcy, insolvency, reorganization, moratorium and similar laws from time to time in effect relating to the rights and remedies of creditors as well as to general principles of equity); do not and will not result in any violation of or be in conflict with the terms of Seller's certificates or articles of incorporation or bylaws; and except for consents which are necessary for transfer or assignment of certain rights or obligations, do not and will not violate in a material manner any lease, venture, mortgage, agreement, contract, judgment, order or other restriction to which Seller or the Purchased Assets may be bound or encumbered.

I. No Actions Affecting Enforcement of the Agreement. There are no actions, suits, or proceedings pending, or to the best of Seller's knowledge threatened, against the Seller in any court, or administrative governmental body or agency which will affect in any material adverse manner the ability of Seller to carry out or consummate the transaction contemplated by this Agreement.

J. Taxes. All tax returns and reports relating to the Purchased Assets and Donated Assets required by law (including, without limiting the scope of the foregoing, all federal, state and local property tax, sales, use and excise tax, if any) to be filed by Seller prior to the Closing have been duly filed or will be caused to be filed and the taxes due thereunder paid, if any.

K. Brokers or Finders Fees. Seller has incurred no obligation or liability, contingent or otherwise, for brokers or finders fees with respect to the matters provided for in this Agreement.

L. No Imposition of Liens. The consummation of the sale by Seller shall not result in the imposition of any lien upon the Purchased Assets or Donated Assets.

M. Completeness of Exhibits. To the best of Seller's knowledge, Exhibits A through J are true and complete. To the best of Seller's knowledge, no information furnished by or on behalf of Seller to Buyer under this Agreement or on any such Schedule contains any untrue statement of a material fact or omits to state a material fact necessary to make a material statement accurate.

N. Title to Purchased Assets. Except as disclosed in any title report, or as reflected in the records of the Carbon County Recorder, and apart from the Retained Assets, to the best of Seller's knowledge, Seller owns all of the Real Property, including the Water Facilities and the Shares, free and clear of any liens (other than taxes not yet due), mortgages, easements, encumbrances, claims, restrictions, pledges, security interests or charges of any kind, and has the right to convey such to Purchaser as described in this Agreement.

O. Pending Litigation. There are no actions, suits, arbitrations or proceedings currently pending against or affecting the Purchased Assets or Donated Assets, and (2) to the best of Seller's knowledge, there are no claims or threatened claims against or liabilities affecting the Purchased Assets or Donated Assets.

P. No Default of Orders. Seller is not in default with respect to any order, judgment, writ, injunction, decree or award of any court or arbitrator that affects the Purchased Assets or Donated Assets.

Q. Compliance with Laws and Regulations. To the best of Seller's knowledge, Seller is in compliance with all currently effective applicable laws and regulations as currently interpreted by regulatory agencies concerning the Purchased Assets and Donated Assets, except any such violations and instances of noncompliance as, separately or in the aggregate, are not material to value of the Purchased Assets or Donated Assets. There is no outstanding written "notice of violation" relative to the Purchased Assets or Donated Assets.

R. Conveyance of Personal Property. The Donated Assets, and if applicable, the Forklifts, shall be transferred by a Bill of Sale. Seller warrants title to the Forklifts and warrants title to the Donated Assets, free and clear of any and all encumbrances, and agrees to pay and discharge any claims of any kind which adversely affect Purchaser's right or title thereto after the Closing.

Prior to and at the Closing, Seller shall provide Purchaser with a list of any knowledge acquired or events occurring after the date of this Agreement that cause Seller's representations and warranties set forth in this Agreement to be untrue in any material respect.

12. LIMITATIONS OF WARRANTIES AND REPRESENTATIONS. Seller makes no representation or warranty, express or implied, concerning or related to the Purchased Assets, the Forklifts or Donated Assets except as expressly provided in Sections 4 and 11. Purchaser's representatives have made examinations of the Purchased Assets, the Forklifts and Donated Assets and have reviewed information and records relating to the Purchased Assets, the Forklifts and Donated Assets as and to the extent that Purchaser has deemed necessary to evaluate the Purchased Assets, the Forklifts and Donated Assets. Purchaser has relied solely on its own investigation and on the representations and warranties set forth herein in entering into this Agreement. SELLER IS SELLING THE FORKLIFTS, THE DONATED ASSETS, AND ANY OTHER PERSONAL PROPERTY TO PURCHASER "AS IS, WHERE IS", AND SELLER EXPRESSLY DISCLAIMS ALL WARRANTIES ON THE FORKLIFTS, THE DONATED ASSETS, AND ANY OTHER PERSONAL PROPERTY, EXPRESSED OR IMPLIED, RELATING TO DESIGN, CONSTRUCTION, CONDITION, MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR OTHERWISE.

13. REPRESENTATIONS AND WARRANTIES OF PURCHASER. Purchaser represents and warrants that the items set forth below in this Section 13 are true:

A. Legal Standing. Purchaser is a body politic and corporate existing pursuant to the provisions of Utah Code Annotated Section 53B-2-101, has power to execute, deliver and carry out the terms and provisions of this Agreement and to carry on its business as now being conducted.

B. Authorizations; Binding Agreements. The execution, delivery and performance of this Agreement by Purchaser and all of the other documents herein contemplated to be executed by Purchaser have been fully authorized by all necessary corporate actions. This Agreement and the other documents herein contemplated to be executed by Purchaser are or will be upon execution valid and binding agreements, duly enforceable upon Purchaser in accordance with their terms (subject, however, to the effects of bankruptcy, insolvency, reorganization, moratorium and similar laws from time to time in effect relating to the rights and remedies of creditors as well as to general principles of equity), do not and will not result in any violation of or being in conflict with any law creating the Purchaser; and except where consents are necessary for the transfer or assignment of certain rights and obligations do not and will not violate in any material manner any indenture, mortgage, agreement, contract, judgment, order or other restriction to which Purchaser is bound.

C. No Brokers or Finders Fees. Purchaser has incurred no obligation or liability, contingent or otherwise, for brokers or finders fees with respect to the matters provided for in this Agreement.

Prior to and at the Closing, Purchaser shall provide Seller with a list of any knowledge acquired or events occurring after the date of this Agreement that cause Purchaser's representations and warranties in this Agreement to be untrue in any material respect.

14. REMEDIES OF PURCHASER. In the event that Seller defaults under the terms of this Agreement or any of the related documents, or in the event any of the representations and warranties of Seller prove to be incorrect or false, then Purchaser shall have all rights and remedies provided by law, including, but not limited to, appropriate remedies for damages and rescission. However, and notwithstanding anything to the contrary in this Agreement, in no event shall the Purchaser be allowed to collect any sum or sums from Seller due to the breach of any representation or warranty in the Agreement, after such sum or sums in the aggregate total amount of \$[REDACTED] Unless all conditions to Closing as specified herein shall have been met on or before July 28, 2006 or as of the Closing Date as extended by mutual agreement of the Parties, or as allowed by other provisions of this Agreement, no party shall have a right to seek specific performance and thereby force a Closing, except as otherwise specifically allowed herein.

15. REMEDIES OF SELLER. In the event of breach by Purchaser hereunder, Seller shall have all rights provided by law or equity. However, and notwithstanding anything to the contrary in this Agreement, in no event shall the Seller be allowed to collect any sum or sums from Purchaser due to the breach of any representation or warranty in the Agreement, after such sum or sums in the aggregate total amount of \$[REDACTED] Unless all conditions to Closing as specified herein shall

have been met on or before July 28, 2006, or as of the Closing Date as extended by mutual agreement of the Parties, or as allowed by other provisions of this Agreement, no party shall have a right to seek specific performance and thereby force a Closing except as otherwise specifically allowed herein.

16. PRECONDITIONS TO CLOSING AND DOCUMENTS AND FUNDS TO BE DELIVERED BY SELLER AT CLOSING.

Before Seller shall be obligated to proceed to Closing the following shall have occurred:

- A. All preconditions to Purchaser's obligation to proceed to Closing have been met.
- B. Purchaser has accepted the title to the Real Property as per the title commitment.
- C. Purchaser has accepted the environmental condition of the Real Property after conducting its own due diligence.
- D. Purchaser has available funds to pay cash at Closing for all amounts due hereunder.
- E. Seller and DOGM have reached agreement on the matters in paragraph 8 above in a manner and pursuant to documents acceptable to Seller in its sole and exclusive discretion.
- F. Purchaser is otherwise in compliance with this Agreement.

Notwithstanding anything contained herein to the contrary, if any of the above mentioned preconditions to Closing are not met, Seller may, in its sole and exclusive discretion, elect to waive any such preconditions and proceed to Closing.

If Closing proceeds, Seller shall deliver the following documents at or prior to Closing:

- A. A fully executed Warranty Deed in substantially the same form attached hereto as Exhibit G.
- B. Two (2) partially executed counterpart originals of the Bill of Sale covering the conveyance of any personal property in substantially the same form attached hereto as Exhibit F.
- C. Two (2) partially executed counterpart originals of the Right-of-Way Agreement in substantially the same form as that attached hereto as Exhibit I.
- D. Two (2) partially executed counterpart originals of the Lease Agreement in substantially the same form as that attached hereto as Exhibit D.
- E. Two (2) partially executed counterpart originals of the Assignment and Assumption Agreement to convey the Water Facilities in substantially the same form as that attached hereto as Exhibit H.

F. Sufficient funds (to be deducted from the purchase price) to cover one-half of all Closing costs, not to exceed \$10,000.

G. The title policy.

H. The Shares endorsed to Purchaser.

I. Any other documents or instruments which are reasonably necessary in order to transfer all of Seller's right, title and interest in and to the Purchased Assets to the Purchaser.

17. PRECONDITIONS TO CLOSING AND DOCUMENTS AND PAYMENT TO BE DELIVERED BY PURCHASER AT CLOSING.

Before Purchaser shall be obligated to proceed to Closing, the following shall have occurred:

A. All pre-conditions to Seller's obligation to proceed to Closing have been met.

B. Purchaser has accepted the title to the Real Property as per the title commitment in its sole discretion.

C. Purchaser has accepted the environmental condition of the Real Property after conducting its own due diligence and in its sole discretion.

D. Purchaser has available funds to pay cash at Closing for all amounts due hereunder.

E. Seller and DOGM have reached agreement on the matters in paragraph 8 above in a manner and pursuant to documents acceptable to Purchaser in its sole and exclusive discretion.

F. Purchaser has all necessary approvals to close.

G. Seller is otherwise in compliance with this Agreement.

Notwithstanding anything contained herein to the contrary, if any of the above mentioned preconditions to Closing are not met, Purchaser may, in its sole and exclusive discretion, elect to waive any such preconditions and proceed to Closing.

If Closing proceeds, Purchaser shall deliver the following payments and execute or deliver, as the case may be, the following documents at Closing:

A. Pay the amounts specified herein.

B. Pay sufficient funds to cover the Closing costs not paid by Seller.

C. Two (2) partially executed counterpart originals of the Bill of Sale covering the conveyance of any personal property in substantially the same form attached hereto as Exhibit F.

D. Two (2) partially executed counterpart originals of the Lease Agreement in substantially the same form as that attached hereto as Exhibit D.

E. Two (2) partially executed counterpart originals of the Assignment and Assumption Agreement in substantially the same form as that attached hereto as Exhibit H.

F. Two (2) partially executed counterpart originals of the Right-of-Way Agreement in substantially the same form as that attached hereto as Exhibit I.

G. Any other documents or instruments which are reasonably necessary in order to consummate the purchase and sale of the Purchased Assets.

18. TAXES.

A. Purchaser shall pay all taxes, if any, that may be due to the State of Utah in connection with the sale, transfer or filing of documents related to the transfer of the Real Property, Shares, Water Facilities, Forklifts and Donated Assets.

B. Seller warrants that the assets transferred hereby are free and clear of any claim or lien by the Utah State Tax Commission. If requested by Purchaser, Seller shall provide a tax clearance from the Utah State Tax Commission prior to closing. Seller agrees to indemnify and defend Purchaser, its agents and officers, from any claim by the State Tax Commission against Purchaser, or its agents or officers, or the assets being transferred and hereby grants to Purchaser the right of set-off for any damage, liability or loss which may be suffered by virtue of any such claim.

C. Property Taxes. The property taxes for the Real Property, Water Facilities; and Shares, if any; and the ~~personal~~ property taxes, if any, shall be pro-rated as of the date of Closing.

D. Federal Tax. Seller warrants that the assets transferred hereby are free and clear of claims by the Internal Revenue Service. Seller agrees to indemnify and defend Purchaser, its agents and officers, from any claim by the IRS against Purchaser, its agents and officers, or the assets being transferred and hereby grants to Purchaser the right of set-off for any damage, liability or loss which may be suffered by virtue of any such claim.

19. ATTORNEY'S FEES AND OTHER COSTS. Regardless of whether the Closing occurs, each party shall bear their own costs, fees and expenses of every kind or character, including but not limited to those for any and all consultants, attorneys or any other person or entity they may engage.

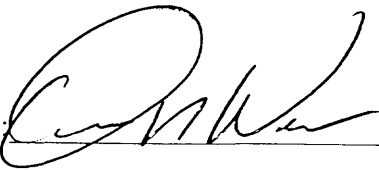
20. MISCELLANEOUS.

- A. Binding Effect. This Agreement shall be binding upon and inure to the benefit of the parties hereto, and their legal representatives, successors and assigns.
- B. Modification. No alteration or modification of this Agreement shall be binding unless in writing and signed by the parties hereto.
- C. Possession. Possession of the Real Property, Water Facilities, Files and Records and Shares and all incidents of ownership thereof, shall pass to Purchaser at the time of Closing only and not before, unless the Parties otherwise enter into a lease arrangement for such possession.
- D. Integration. This Agreement supersedes any and all prior oral or written agreements between Seller and Purchaser regarding the matters herein, and all prior agreements are deemed merged herein. There are no representations or warranties, except as are specifically set forth in this Agreement and the documents delivered at Closing.
- E. Counterpart Agreements: This Agreement may be executed in any number of counterparts and shall be binding upon all parties who execute the same or a counterpart hereof.
- F. Severance: Should any portion of this Agreement be declared invalid and unenforceable, then such portion shall be deemed to be severed from this Agreement and shall not affect the remainder thereof.
- G. Time of the Essence. Time is of the essence of this Agreement and each of its provisions, but no party shall have any liability to the other if conditions to Closing have not occurred and this Agreement is thereafter terminated.
- H. Construction. This Agreement shall be construed according to the laws of the State of Utah. It is deemed to have been drafted by both parties after negotiation and shall not be construed against either as a result of drafting.
- I. Survival. Except as otherwise expressly noted in this Agreement, all representations, warranties, covenants, obligations and agreements contained herein (and in the Exhibits) shall survive the execution and delivery hereof and shall survive the Closing and not be merged into any other agreement or document..
- J. Destruction. In the event of any damage, destruction or other adverse impact to the Real Property, Water Facilities, Files and Records between the date of executing this Agreement and Closing, by fire, natural hazard or otherwise, this Agreement may be terminated by Purchaser and, if so terminated, the rights and obligations of the parties hereunder shall cease.
- K. Authority. The undersigned represent and have provided written and valid proof that they are duly authorized to sign for and bind their respective entities or businesses.

IN WITNESS WHEREOF, the parties have executed this Agreement the date and year first above written.

SELLER:

PLATEAU MINING CORPORATION


By: 

Name: Dennis Ware

Its: Manager Administration and Controller

PURCHASER:

COLLEGE OF EASTERN UTAH

By: 

Name: Ryan L. Thomas

Its: President